PORE WATER SAMPLING REPORT

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CONTENTS

LI	ST OF	FIGURES	ii
LI	ST OF	TABLES	iii
LI	ST OF	APPENDICES	iv
A	CRON	YMS AND ABBREVIATIONS	v
1	INTE	RODUCTION	1-1
2		JECT APPROACH AND SAMPLING METHODS	
	2.1	GENERAL APPROACH	
	2.2	PORE WATER SAMPLE COLLECTION	
		2.2.1 Sampling Stations	
		2.2.2 Well Point Sampling	
		2.2.3 Small Volume Peeper Sampling	
	2.3	SAMPLE CUSTODY AND ANALYSIS	2-6
	2.4	FIELD DECONTAMINATION	2-6
	2.5	MANAGEMENT OF INVESTIGATION-DERIVED WASTE	2-7
	2.6	DATA QUALITY ASSURANCE	2-7
3	SUM	IMARY OF SAMPLING RESULTS	3-1
	3.1	FIELD PARAMETER DATA	3-1
	3.2	CHLOROBENZENE	3-2
4	PREL	LIMINARY SCREENING-LEVEL ECOLOGICAL RISK ASSESSMENT.	4-1
	4.1	PROBLEM FORMULATION	4-1
	4.2	SCREENING-LEVEL ECOLOGICAL EFFECTS EVALUATION	4-2
	4.3	SCREENING-LEVEL EXPOSURE AND RISK ESTIMATE	4-3
	4.4	UNCERTAINTY EVALUATION	4-4
	4.5	SCIENTIFIC MANAGEMENT DECISION POINT	4-6
5	CON	ICLUSIONS AND RECOMMENDATIONS	5-1
6	REFE	ERENCES	6-1

LIST OF FIGURES

Figure 1.	Site Location Map
Figure 2.	Final Pore Water Sampling Stations
Figure 3.	Push Point Pore Water Sampling Point General Schematic
Figure 4.	Small Volume Peeper General Schematic
Figure 5.	Chlorobenzene Concentration Distribution

LIST OF TABLES

Table 1.	Field Parameter Data
Table 2.	Pore Water Analytical Results – September 2011
Table 3.	Pore Water Analytical Results – June 2012
Table 4.	Ratio of the Average Chlorobenzene Concentration in Pore Water to the Average Concentration in Shoreline Groundwater Monitoring Wells
Table 5.	Comparison of Chlorobenzene Concentrations in Pore Water to Chlorobenzene Concentrations in Immediately Upgradient Groundwater at the Locations of the Pore Water Transect Stations that are Positioned Offshore of Shoreline Wells with the Highest Historic Chlorobenzene Concentrations
Table 6.	Summary of Hazard Quotients for Maximum and Average Chlorobenzene Concentrations in Pore Water across Curtis Bay and Stonehouse Cove
Table 7.	Comparison of Chemical Concentrations in Site Groundwater to Secondary Chronic Values for Marine Benthic Invertebrates
Table 8.	Hazard Index Summary for Groundwater Chemicals of Concern Compared with Screening Values Developed using USEPA 1991 Methodology

LIST OF APPENDICES

- Appendix A. ECOTOX Output of Marine Acute Toxicity Data for Chlorobenzene (USEPA 2007)
- Appendix B. ECOTOX Output of Marine Acute Toxicity Data for Groundwater Chemicals of Concern (USEPA 2007)
- Appendix C. Hazard Quotient and Hazard Index Calculation Based on Groundwater Data from Shoreline Monitoring Wells

ACRONYMS AND ABBREVIATIONS

μg/L micrograms per liter

ACR acute-to-chronic ratio

COC constituent of concern

EC50 median effective concentration

FDRTC Final Decision and Response to Comments

FMC FMC Corporation

ft foot

GPS global positioning system

HI hazard index

HQ hazard quotient

in. inch

Koc organic carbon partition coefficient

LC50 median lethal concentration

L/min liters per minute

mg/L milligrams per liter

mL milliliter

ppt parts per trillion

QSAR quantitative structure activity relationship

RCRA Resource Conservation and Recovery Act

SAP sampling and analysis plan

SCV secondary chronic value

SLERA screening-level ecological risk assessment

USEPA U.S. Environmental Protection Agency

VOA volatile organic analysis

1 INTRODUCTION

FMC conducted pore water sampling in accordance with the pore water sampling and analysis plan (SAP; ERM 2011) and pore water sampling and analysis plan addendum (SAP addendum; ERM and Integral 2012), approved by the U.S. Environmental Protection Agency (USEPA) on July 26, 2011 and April 5, 2012, respectively. This document presents the results of pore water sampling completed adjacent to the western and southern boundaries of the FMC Corporation (FMC) property located at 1701 East Patapsco Avenue in Baltimore, Maryland (the Site; Figure 1). A preliminary screening-level ecological risk assessment (SLERA) based on the pore water sampling results is presented.

The pore water sampling program, as specified in the SAP and SAP addendum, is designed to quantify the concentrations of chlorobenzene in pore water as an indication of groundwater discharge from the Site to the adjacent surface water (i.e., Curtis Bay and Stonehouse Cove). Chlorobenzene was selected as an indicator of groundwater discharge because it is the constituent detected most frequently at the highest concentrations relative to the majority of the other groundwater constituents of concern (COCs). As designed in the study, the presence of elevated concentrations of chlorobenzene in pore water would indicate that discharge of Site groundwater contamination is not being effectively controlled by the groundwater recovery system.

FMC installed and is operating a groundwater recovery and treatment system as an existing corrective measure under the provisions of Resource Conservation and Recovery Act (RCRA) Corrective Action Permit No. MDD003071875, issued by USEPA in 1989. In Section IV, Part A, of the *Final Decision and Response to Comments* (FDRTC; USEPA 2011), USEPA presents its strategy for groundwater remediation at the Site and specifies that a comprehensive study be completed to evaluate the short-term and long-term effectiveness of the existing groundwater recovery system. The FDRTC states the comprehensive study include two components: 1) two years of semiannual groundwater sampling (this sampling is ongoing), and 2) sediment and pore water sampling. Further, the FDRTC specifies an iterative approach for the sediment and pore water sampling, with the initial phase consisting of sampling and analysis of pore water and subsequent phases, if necessary, to be determined by USEPA. This report presents the results of the initial pore water sampling.

In September 2011, pore water samples were successfully collected at 11 of the 16 sampling stations specified in the SAP (Figure 2). Samples could not be collected at 5 of the stations in Stonehouse Cove at that time because the fine-grained sediments prevented pore water collection using the methods prescribed in the SAP. The SAP addendum specified protocols for sampling pore water in Stonehouse Cove using small volume peepers, which are designed to sample pore water in fine-grained sediments. That sampling was conducted in May–June 2012.

The sampling results show chlorobenzene pore water concentrations well below those detected in upgradient groundwater and that, coupled with the relatively low toxicity of chlorobenzene to aquatic organisms, indicates that any chlorobenzene being transported with groundwater discharge does not pose an unacceptable risk to ecological receptors. Based on this, no additional study is needed to characterize ecological risks from groundwater discharge at the Site. The sampling results coupled with the ecological risk characterization, indicate that the groundwater extraction system is effectively mitigating discharge of impacted groundwater from the Site. The comprehensive groundwater study report will present an analysis of the effectiveness of the groundwater recovery system.

2 PROJECT APPROACH AND SAMPLING METHODS

The following summarizes the strategy and methodology applied in the collection of pore water samples.

2.1 GENERAL APPROACH

FMC, in collaboration with USEPA, developed the following approach to assess the effectiveness of the onsite groundwater recovery and treatment system relative to mitigation of groundwater discharge of Site-related constituents into surface waters. This strategy is codified in the FDRTC (USEPA 2011). The technical basis behind the strategy is presented in detail in the approved SAP (ERM 2011).

- Pore water sampling was identified as a method to assess the effectiveness of the onsite groundwater recovery system at preventing Site-related constituents from migrating off site.
- The majority of groundwater discharge from the Site is expected to occur in the intertidal zone due to the influence of the brackish bay water on groundwater flow. Thus, this was the area targeted for pore water sampling.
- Nearshore stations were selected in the intertidal zone to provide a reasonable spatial
 coverage along the Site shoreline. Additional "offshore" sampling stations were
 positioned approximately 75 ft from the shoreline in the subtidal zone along transects
 oriented perpendicular to the shoreline to assess if groundwater discharge is occurring
 further offshore.
- Provenance of the pore water (i.e., groundwater vs. surface water) was assessed through field measurements of specific conductivity and comparison to specific conductivity in Site groundwater and surface water.^{1,2}
- Chlorobenzene was identified as the target analyte for the sampling effort in order to
 assess the effectiveness of the onsite groundwater recovery and treatment system
 relative to mitigation of groundwater discharge of Site-related constituents into Curtis
 Bay and Stonehouse Cove. Chlorobenzene is the COC detected most frequently and at
 the highest concentrations in Site groundwater, and chlorobenzene has a higher mobility

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¹ The SAP specifies that hydraulic head also be considered. However, hydraulic head could not be measured with the equipment selected to collect the pore water samples.

² The SAP specifies that pore water sampling was to be conducted at the five nearshore and five offshore locations situated along the five transects adjacent to where the highest chlorobenzene concentrations have been noted in shoreline monitoring wells; and that samples would only be collected at the remaining six locations where the specific conductance suggested the presence of groundwater and/or active groundwater discharge. All 16 of the pore water locations were sampled as part of the two sampling events.

(i.e., a lower organic carbon partition coefficient (Koc) value³) than the majority of other COCs in Site groundwater. For these reasons, chlorobenzene has a greater potential to migrate with groundwater discharging from the Site to Curtis Bay and Stonehouse Cove than other COCs.

2.2 PORE WATER SAMPLE COLLECTION

2.2.1 Sampling Stations

Collection of pore water samples was completed at 16 stations along the shoreline of Curtis Bay and Stonehouse Cove (Figure 2). These included 11 nearshore stations within the intertidal zone along the Site perimeter and 5 offshore stations approximately 75 feet (ft) from the shoreline. These stations were oriented along a transect perpendicular from the shoreline in areas where the highest chlorobenzene concentrations were measured in shoreline groundwater monitoring wells.

2.2.2 Well Point Sampling

Pore water samples were collected using well points from 11 of the 16 stations during field efforts conducted from September 13–20, 2011. The preferred position for the well point installation at each of the 11 nearshore sampling stations was within the rip-rap or fine-grained material above the water line in the intertidal zone (if present). However, higher than normal low tides occurred during the sampling period due to the lingering, offshore effects from tropical storms that had recently passed through the area. As a result, at most locations the low-tide water line remained within or just at the edge of the area of large exposed rip-rap on the steep banks along both Curtis Bay and Stonehouse Cove, and sediments suitable for point advancement were exposed above the water line. The uneven and slick surface of the rip-rap bank created an unsafe environment for the sampling team, and the rip-rap was judged to be too large to safely move by hand in order to access the finer grained material beneath. Based on these considerations, the sampling stations were relocated to the intertidal zone slightly beyond the toe of the exposed rip-rap. In addition to adjustments due to the tide and rip-rap conditions, several sampling stations were also repositioned due to lack of groundwater indications (as discussed in Section 2.2.2.1) or due to excessive fines in the sediments that clogged the sampling apparatus. The attempted and resulting final completed sample stations are shown on Figure 2.

Despite numerous attempts, samples could not be collected by the well point apparatus from the five pore water sampling stations within Stonehouse Cove (stations PW-8A through PW-

³ Organic carbon partition coefficient (Koc) quantifies the affinity of an organic chemical to bind/absorb to organic matter. Absorption to organic matter in the aquifer and sediment matrix results in the attenuation of the transport of organic chemicals during groundwater flow/discharge.

11A; Figure 2). This was due to the upper portion of the sediments in this area being composed of a very soft, silty-clay material that rapidly clogged the screens for the well points and that did not allow water to pass through into the pump intake tubing. Once it became apparent, after many repeated attempts, that this material would not yield water using the well point methodology, a qualitative sediment depth survey of the Stonehouse Cove area was completed to find, if possible, areas where this material was thin or absent (based on ease of test rod penetration). The locations where sediment depth was evaluated are marked with an "X" on Figure 2. The results of this survey revealed that 6–8 ft of soft, fine-grained material is present throughout the pore water study area in Stonehouse Cove. As is described in Section 2.2.3, small volume peepers were deployed at a later date to sample stations PW-8A through PW-11A.

2.2.2.1 Well Point Installation

Two different approaches were used to install the well points (push-point sampling and vessel mounted Vibracore device sampling). The installation approach depended on the subsurface conditions encountered at each location. The push-point samplers were the preferred method of installation, as penetration of the point to the target depth could be achieved by hand. The Vibracore was used as a contingent apparatus where bottom or subsurface conditions may have prevented the installation of the push-point sampler to a sufficient depth by hand. This method was attempted at only one location (PW-03B), primarily in an effort to provide comparative water level head data between the pore water and surface water. Regardless of the type of push point used, the samplers were installed so that the screened interval was at a depth of 8–12 inches (in.) below the water/subsurface interface.

The push points utilized consisted of ¾-in. hollow stainless-steel rods fitted with a reusable drive point/sampling head (AMS Retract-a-Tip®). The well points were installed by hand, pushing to advance the point into the sediments. The drive point/sampling head consisted of a stainless steel assembly approximately 1.5 in. in diameter and 6 in. in length. The assembly includes a drive point at the base, an intake covered with a mesh screen, and a sampling barb at the top. The screen is fitted with a stainless steel sheath that is opened by pulling up 1 to 2 in. on the assembly after it has been driven to depth to allow for the screen to be exposed. The screen is approximately 2 in. in length. A disposable sampling tube was attached to the barb at the top of the assembly and was run to the surface inside the 3-ft-long threaded drive rods. Figure 3 presents a general diagram of the push-point installation and well point construction details. Because of the higher than normal low tide conditions, all work was conducted from a pontoon boat in order to provide a stable sampling platform for the workers conducting the sampling.

Alternate push-point setups were also evaluated in the field in an effort to identify the best approach for the Site conditions. These included a sacrificial drive point connected to the surface via the sample tubing, and a hollow stainless-steel drive tube. Both of these types of

push points utilized circular perforations at the base to allow the flow of water into the sample tubing. However, the lack of a screen allowed sediment to fill the bottoms of the samplers, and inhibited the flow of water. Therefore, the retractable screened assembly was determined to be the most appropriate for the Site conditions.

The Vibracore system consists of a 2-in.-diameter, threaded stainless steel tube that is driven approximately 1 ft into the subsurface with a boat-mounted hydraulic device. The larger diameter is needed to provide strength to withstand the driving force of the vibrating hammer. Once this tubing was advanced to seal off the surface water and upper sediments, the push point was then advanced by hand inside the 2-in.-diameter tubing and installed as described above.

The horizontal coordinates of well points, including those points that were attempted but not sampled, were measured using a hand-held global positioning system (GPS) device capable of locating to within sub-1-ft accuracy.

2.2.2.2 Well Point Pore Water Sampling Procedures

Once a well point was advanced to the target depth, each well point was then purged using a peristaltic pump fitted with disposable Tygon intake and discharge tubing and a disposable silicone bladder. The intake tubing was connected to the barb at the top of the screen assembly. The well points were purged at the lowest rate feasible (approximately 0.5 liters per min (L/min) or less). Purging continued until at least one volume of standing water had been removed from the casing. The pore water samples were collected by directing the discharge from the tubing of the pump to the laboratory-supplied 40-milliliter (mL) volatile organic analysis (VOA) vials. Samples were collected with as little agitation or disturbance as possible.

As is discussed in the SAP, field measurements of pore water specific conductivity, temperature, and hydraulic head were attempted as a means to assess if groundwater discharge was likely occurring at a given pore water sampling station. It was not possible to collect water level head measurements at the 10 stations where the push-point set-ups were utilized. This is because the water level did not rise above the top of the Retract-A-Tip sampling drive head. As a result, the water level could not be visually determined. Further, the rods are too narrow to permit the use of a probe to measure the water level. The Vibracore was utilized at one location (PW-03B) specifically to allow for determination of comparative water level readings. However, the recharge rate was overly slow (approximately 5–10 mL/min), such that waiting the required time for full water level equilibration was impractical. As a result, hydraulic head was not used as an indicator of groundwater discharge.

Pore water temperature and conductivity were measured from the well point discharge during purging using a portable meter. The probe was calibrated daily in accordance to the manufacturer specifications and decontaminated prior to deployment at each station. The pore

water temperature and specific conductivity readings collected at the start of and during purging were compared to Site groundwater values for these parameters measured in adjacent shoreline wells during recent monitoring events, as well as to field readings of surface water temperature and specific conductivity measured immediately prior to purging the well point. The results of the field parameter measurements are presented in Table 1.

2.2.3 Small Volume Peeper Sampling

Pore water samples were collected from Stonehouse Cove using a Modified Hesslein In-Situ Pore Water Sampler, more commonly called a "small volume peeper." A small volume peeper operates based on the principle that, given enough time, a volume of water contained in the sampler will equilibrate with the surrounding pore water as pore water solutes diffuse through the sampler membrane. A diffusion-based sampler is ideal for locations such as Stonehouse Cove, where fine-grained sediments preclude the collection of pore water through advective-based sampling techniques (e.g., well points).

The small volume peeper, shown in Figure 4, consists of three parts: a 1.3-cm-thick acrylic body, a 0.3-cm-thick acrylic cover, and a 0.45-micrometer Teflon® dialysis membrane. The 6- by 18-in. sampler body is equipped with a series of approximately 10-mL sample chambers spaced at 1 cm. This sampler is capable of collecting approximately 200 mL of water over a 15-in. sediment depth. Prior to deployment, the sampler body was laid flat and the chambers overfilled with deionized water. The membrane was then placed atop the sampler body and was overlain by the sampler cover. Screws were used to secure the cover to the sampler body and to seal the membrane against the sampler body such that there is no air entrained in the sample chambers. The cover has openings co-located with each sample chamber, so that the membrane is exposed to the sediment subsurface once the sampler is deployed.

The peepers were deployed May 23, 2012, by pushing the peepers directly into the sediments to a total depth of approximately 12 in. The peepers were left in place to equilibrate for a 27-day period. This time frame is equivalent to or exceeds the time frame most often applied for diffusion-based samplers (USEPA 2001; Lorah et al. 1997; Adams 1991; Brumbaugh et al. 1994; Sarda and Burton 1995). The peepers were retrieved on June 19, 2012, and brought to surface for immediate processing. Three peepers were deployed at each station.⁴

The first two peepers from each sampling location were processed as quickly as possible after retrieval to minimize the potential for volatilization of chlorobenzene during processing. Water was extracted from each of the sample chambers by inserting a needle through the membrane and extracting with a syringe. Each VOA vial was filled with water from sample chambers distributed across the bottom third of the peeper to ensure that the water added to the vial is

⁴ Five total peepers were deployed at location PW-08 to allow for collection of a field duplicate and quality control/quality assurance samples (matrix spike/matrix spike duplicate) per the SAP.

vertically representative of the 8- to 12-in. depth interval of sediment.⁵ The water extracted from the peeper was transferred to the sample VOA vials and the vials sealed with no headspace.

The third peeper from each sampling location was used for measurement of specific conductivity and temperature. Water was extracted from across the bottom third of the peeper per the methods described above and transferred to a beaker for measurement of specific conductivity and temperature using a portable meter. As specified in the SAP addendum, specific conductivity was used as the primary indicator of potential groundwater discharge, as the temperature readings were likely influenced by solar heating during the period of time required to transfer the sample from the peeper to the beaker. The meter was calibrated daily and both the meter and the beaker rinsed with potable water prior to deployment at each sampling station.

2.3 SAMPLE CUSTODY AND ANALYSIS

Chain-of-custody forms were used to provide a record of responsibility for sample collection, transport, and submittal to the laboratory. Chain-of-custody forms were filled out by the field team at a minimum of once per day at the conclusion of the sampling activities. The original chain-of-custody form accompanied the Site samples to the laboratory, with a copy retained by the sampling team. Samples were stored on ice to maintain a temperature range of 0–4°C. The samples were sent to Accutest Laboratories located in Dayton, New Jersey. All pore water samples were analyzed for chlorobenzene via USEPA Method 8260B.

2.4 FIELD DECONTAMINATION

To prevent cross-contamination, nondisposable sampling equipment such as the push-point rods and drive point/sampling head were decontaminated prior to use, between sample stations, and prior to leaving the Site. The points were disassembled into their component pieces during decontamination. In general, decontamination of nondisposable sampling equipment involved the use of Alconox detergent and potable water scrub, followed by a potable water rinse, distilled water rinse, and towel dry. New tubing was used for each sampling point and therefore was not decontaminated for reuse.

Dedicated small volume peepers, disposable syringes, and needles were used at each station. The peepers and other sample equipment and meters were decontaminated prior to use and prior to leaving the Site. Decontamination involved the use of Alconox detergent and potable

⁵ This is consistent with the sampling interval for pore water collected at the Site using well points.

⁶ Peepers cannot be used for measurement of hydraulic head.

water scrub, followed by a potable water rinse, distilled water rinse, and air drying. Sampling equipment was rinsed free of sediment prior to leaving the Site.

2.5 MANAGEMENT OF INVESTIGATION-DERIVED WASTE

All disposable materials (i.e., tubing, personal protective equipment, waste sample point construction materials) were containerized for disposal offsite. Water purged from the well points was discharged into the corresponding surface water body in the vicinity of sampling. Decontamination liquids were treated in the onsite water treatment facility.

2.6 DATA QUALITY ASSURANCE

Quality control and quality assurance samples were collected and analyzed to permit validation of the analytical data and verify that the data are acceptable. Quality control samples were collected in accordance to the SAP and SAP addendum and included equipment rinsate blanks, trip blanks, blind duplicates, and matrix spike/matrix spike duplicates. All quality control and quality assurance samples were analyzed for chlorobenzene by Method 8260B by Accutest Laboratories located in Dayton, New Jersey.

Accutest Laboratories provided the results and the associated Contract Laboratory Program-like data packages. The analytical results were validated following standard USEPA Region III procedures. The validated data is presented herein.

3 SUMMARY OF SAMPLING RESULTS

This section summarizes the results of the field parameter (specific conductivity and temperature) measurements and chlorobenzene analytical results in pore water.

3.1 FIELD PARAMETER DATA

The pore water sampling approach, as presented in the SAP, involves the use of specific conductivity and temperature measured in pore water as an indicator of groundwater discharge. A criterion of pore water temperature or specific conductivity readings that were greater than 50 percent of the difference between the temperature or specific conductivity measured in groundwater and surface water (i.e., the pore water specific conductivity or temperature was closer to that of groundwater than surface water) was applied as a basis for determining if groundwater discharge is likely to be occurring at a given pore water sampling station.

The temperature and specific conductance data are presented in Table 1, along with the average temperature and specific conductivity measured in upgradient, shoreline groundwater wells. Temperature readings proved to be an ineffective measure for evaluation of groundwater discharge. It is likely that the pore water temperature readings were not representative of actual pore water conditions. It is believed this was largely a function of solar heating of the water in the sample tubing during purging of the well points or in the peeper during recovery.

Specific conductivity was also found to be an unreliable indicator of groundwater provenance due to its variance. Shoreline groundwater exhibits a wide range of specific conductance and, for several of the pore water sampling stations, the specific conductance in the immediately upgradient wells exhibited substantially different specific conductivity values. In these cases, two pore water target values were calculated to assess groundwater discharge. In some cases, the upgradient wells had higher specific conductivity levels than was recorded in the surface water. In these cases, a presence of groundwater would be indicated by pore water specific conductivity measurements that are greater than that measured in surface water. Pore water specific conductivity values met the target level indicating a groundwater provenance at only 3 of the 16 pore water sampling stations (PW-2B, PW-3A, and PW-7B), although the specific conductivity measured at several other pore water stations approached the target range. However, the values recorded at many of the other stations were either greater or less than in both surface water and groundwater specific conductivities associated with the station. The ambiguity of the specific conductivity results likely in part reflects the temporal variability in surface water conductivity, which varies as a function of tidal and climatic conditions, and the spatial variability in groundwater specific conductivity.

3.2 CHLOROBENZENE

Pore water was sampled at all 16 stations located in Curtis Bay and Stonehouse Cove adjacent to the southern and western boundaries of the FMC property (Figure 2). Eleven of the stations (denoted by an "A" in the station identifier) are situated at nearshore locations within the intertidal zone where groundwater discharge is expected to be greatest. Five of these stations (PW-1A, PW-2A, PW-3A, PW-7A, and PW-10A) were positioned to be immediately downgradient of shoreline wells in which the highest historical concentrations of chlorobenzene have been detected in shoreline groundwater (wells MW-14A, MW-15A, MW-16A, MW-43A, and MW-42). A second set of five offshore pore water sampling stations (PW-1B, PW-2B, PW-3B, PW-7B, and PW-10B) was positioned approximately 75 ft from the shoreline along transects oriented perpendicular to the shoreline to assess if groundwater discharge is occurring further offshore.

The chlorobenzene analytical results for each of the pore water sampling stations are provided in Tables 2 and 3, and are shown on a plan view map in Figure 5. Chlorobenzene was detected in 10 of the 11 nearshore stations, with detected concentrations ranging from 0.33 to 670 micrograms per liter (μ g/L), well below those detected in upgradient groundwater, which range from 70 to 33,100 μ g/L (Figure 5). Nearshore pore water samples from stations in Curtis Bay exhibited a similar range in concentration to the samples collected from nearshore stations in Stonehouse Cove. Chlorobenzene was not detected in any of the three offshore stations in Curtis Bay (PW-1B, PW-2B, and PW-3B). Chlorobenzene was detected in pore water from offshore stations PW-7B and PW-10B in Stonehouse Cove at concentrations of 59.7 and 183 μ g/L, respectively; also well below those detected in upgradient groundwater. Further, the adjacent nearshore stations (PW-7A and PW-10A) exhibited considerably lower chlorobenzene concentrations (<0.22 and 1.6 μ g/L, respectively). These findings suggest that the fine-grained, low-permeability sediments at the base of the cove limit nearshore groundwater discharge in localized areas of Stonehouse Cove, and that groundwater discharge occurs further offshore in these areas.

To place the pore water chlorobenzene concentrations in context, Table 4 compares the average chlorobenzene concentration in pore water to the average concentration measured in shoreline groundwater monitoring wells. On average across the entire Site shoreline, the chlorobenzene concentrations in pore water were 29 times lower than the concentrations in shoreline groundwater (Table 4). More importantly, pore water chlorobenzene concentrations were on average >29,000 times lower than chlorobenzene concentrations in groundwater in the areas where the highest chlorobenzene concentrations are present in Site shoreline groundwater. As is discussed above, five transects consisting of two pore water sampling stations each (PW-1A, PW-1B, PW-2A, PW-2B, PW-3A, PW-3B, PW-7A, PW-7B, PW-10A, and PW-10B), were positioned immediately downgradient of the shoreline wells where the highest concentrations of chlorobenzene are present in shoreline groundwater (wells MW-14A, MW-15A, MW-16A, MW-43A, and MW-42). The chlorobenzene concentrations at these pore water sampling

stations were 16 to >150,000 times lower than the chlorobenzene concentrations in the shoreline groundwater wells immediately upgradient (Table 5). These results demonstrate that, while some impacted groundwater is potentially discharging from the Site to Curtis Bay and Stonehouse Cove, the groundwater recovery system is effective in capturing groundwater discharge from the Site and the system, coupled with attenuation processes along the flow path, is limiting chlorobenzene in pore water to low concentrations relative to shoreline groundwater. Further, chlorobenzene is a conservative analog for assessing the transport of other Site COCs to pore water with groundwater discharge.

4 PRELIMINARY SCREENING-LEVEL ECOLOGICAL RISK ASSESSMENT

A preliminary SLERA was conducted to evaluate the potential risk posed by chlorobenzene in pore water to benthic communities, following USEPA's *Guidelines for Ecological Risk Assessment* (USEPA 1998). Though other constituents have been detected in Site groundwater, chlorobenzene is among the most mobile and is the analyte detected most frequently and at the highest concentrations. Therefore, the conclusions regarding chlorobenzene risks could be regarded as indicative of total risks for Site pore water. Potential risks associated with other groundwater COCs are discussed in Section 4.4.

4.1 PROBLEM FORMULATION

The Site is located along Stonehouse Cove and Curtis Bay, which are side embayments of the Patapsco River, a sub-estuary of the Chesapeake Bay. The watershed surrounding the Site is largely urban and industrial. Monitoring at the station WT5.1 by Maryland Department of Natural Resources (MDDNR 2012) from 1985–2012 indicates that salinity in Curtis Bay ranges from 5 to 18 parts per trillion (ppt). Surface water salinity reported at the station ranged from 0.2 to 8 ppt during the September 2011 sampling event and from 4 to 8 ppt during the May/June 2012 sampling event.

Groundwater at the Site contains chlorobenzene. The pore water data suggest that, although substantially limited by the groundwater recovery system and natural attenuation processes, some chlorobenzene in groundwater may be discharging from the Site to nearshore areas in Curtis Bay and nearshore and offshore locations in Stonehouse Cove. Benthic organisms that live on or in the sediments surrounding the Site could be exposed to chlorobenzene via respiration (gill uptake) and direct contact. Chlorobenzene does not accumulate to any significant degree in aquatic life (nor do any of the other groundwater COCs); therefore, exposures via the diet are not expected to contribute importantly to overall exposures. Exposures in water column species will be less than those in benthic species given that chlorobenzene does not bioaccumulate in the foodweb and concentrations in surface water will be reduced quickly due to volatilization and dispersion in the water column.

As a result, benthic organisms are selected as the primary receptor for this assessment. The preliminary SLERA endpoint is protection of benthic community composition and production. Given the salinity range near the Site, estuarine/marine species are the focus of the assessment.

4.2 SCREENING-LEVEL ECOLOGICAL EFFECTS EVALUATION

Chlorobenzene is an organic chemical that induces toxicity via a nonpolar narcosis mode of action (Calamari et al. 1983; Verhaar et al. 1992; Roex et al. 2000; Richardson 2007). Nonpolar narcosis, also referred to as "baseline toxicity," is a nonspecific physiological effect that is independent of chemical structure and directly correlated with a chemical's hydrophobicity (Roex et al. 2000; Richardson 2007). This mode of action is applicable to neural organic chemicals. Chemicals that operate via this mode of action disrupt cellular processes by interacting with the lipids of biological membranes. This mode of action operates under acute and chronic exposure conditions and is reversible once the chemical is removed (Konemann 1981).

Based on summaries prepared by USEPA (1995), chlorobenzene has moderate to low toxicity to aquatic organisms following acute exposures, with toxicity values in the range between >1 milligrams per liter (mg/L) to 100 mg/L. USEPA (1995) reported threshold limit values for chlorobenzene in fish exposed for 24 to 96 hours to be in the range of 20–70 mg/L. Algae appear to be less sensitive, with a toxicity threshold value of >390 mg/L reported (USEPA 1995). USEPA (1995) calculated an algal 96-hour median effective concentrations (EC50⁷) of 8.9 mg/L and a daphnid 48-hour EC50 of 13.6 mg/L using the neutral organic quantitative structure activity relationship (QSAR) (Clements and Nabholz 1994).

Toxicity following chronic exposures has not been studied extensively and USEPA has not developed an aquatic water quality criterion for chlorobenzene due to insufficient data. Roex et al. (2000) examined acute and chronic toxic responses for a number of nonpolar chemicals (chlorobenzene included) and across a variety of taxa, and calculated a mean acute-to-chronic ratio (ACR) of 2.6 for these chemicals.

USEPA Region III (USEPA 2012) uses a marine screening benchmark for chlorobenzene of 25 μ g/L as a screening-level benchmark to evaluate screening-level risks from chronic exposures to chlorobenzene. The Region III screening value is based on interim *Canadian Water Quality Guidelines for the Protection of Aquatic Life* (CCME 1999) that were derived from a single growth rate reduction study on the sand crab, *Portunus pelagicus*, in which a 10% reduction in growth was observed following 40 days of exposure to chlorobenzene at a concentration of 250 μ g/L. Chlorobenzene was detected in pore water at several locations at the FMC Baltimore Site above the 25 μ g/L screening level.

To supplement the Region III value based on that single study, secondary chronic values (SCVs) were developed using median lethal concentration (LC50⁸) data for marine taxa published in USEPA's ECOTOX database (USEPA 2007). Following USEPA (1991) guidance, SCVs can be

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⁷ EC50 = median effective concentration of toxicant that produces a designated effect in 50% of test organisms exposed

⁸ LC50 = lethal effective concentration of toxicant that produces lethality in 50% of test organisms

developed using acute toxicity test data by dividing the acute value (e.g., LC50) by an ACR. SCVs were developed using two different ACRs: 1) the ACR of 2.6 derived by Roex et al. (2000) for nonpolar narcotic chemicals such as chlorobenzene, and 2) an ACR of 10 recommended by USEPA (1991) when there is an "absence of data to develop an ACR". The ACR of 10 represents the upper 90th percentile of all published ACR data (all chemicals), as reported by USEPA (1991). The ACR of 10 is used here in addition to the chemical-specific ACR or 2.6 to provide a potential range of possible toxicity values. Because chemical-specific data do exist, there is less uncertainty surrounding the ACR of 2.6.

Data from acute toxicity studies using marine species were derived from USEPA's ECOTOX database. The compiled data are presented in Attachment A. Test data were available for studies with sheepshead minnow, opossum shrimp, and fleshy prawn. A total of eight effects concentrations from three independent studies were reported. The LC50 values ranged from 1,720 μ g/L to 24,700 μ g/L, with a geometric mean of all values of 11,000 μ g/L. This geometric mean value is very close to the daphnid acute value of 13,600 μ g/L reported by USEPA (1995), which was derived using a QSAR approach for the narcosis mode of action. Applying the ACRs of 10 and 2.6 to the geometric mean acute value results in SCVs of 1,100 and 4,200 μ g/L, respectively.

4.3 SCREENING-LEVEL EXPOSURE AND RISK ESTIMATE

A hazard quotient (HQ) approach was used to support the screening level risk calculations. Risks were evaluated separately for Stonehouse Cove and Curtis Bay locations. Table 6 compares maximum and mean detected chlorobenzene concentrations to the calculated SCVs. As can be seen, the calculated HQs are below 1 even when the maximum pore water chlorobenzene concentration is compared to the SCV based on an ACR of 10. Further, the HQs based on the mean pore water concentrations are 5 to 30 times below 1. These comparisons indicate that the chlorobenzene detected in the pore water does not pose a risk to benthic organisms.

Chlorobenzene pore water concentrations are well below those detected in groundwater (on average 29 times lower than the concentrations in all shoreline groundwater and >29,000 times lower than the concentrations in shoreline wells where the greatest impacts are present; Tables 4 and 5)—demonstrating that transport of chlorobenzene to pore water with discharging groundwater is highly limited by the groundwater recovery system and natural attenuation processes and demonstrating the groundwater extraction system is effective in controlling the releases from the Site. That limited transport, coupled with the relatively low toxicity of chlorobenzene to aquatic organisms, indicates that any chlorobenzene being transported with groundwater discharge does not pose an unacceptable risk to ecological receptors.

4.4 UNCERTAINTY EVALUATION

There are several sources of uncertainty in this evaluation.

First, there is some degree of uncertainty associated with the SCV toxicity values used in this assessment. The SCVs used are more than 40 times higher than USEPA Region III screening value. If USEPA Region III values were used in the preliminary SLERA, approximately half of the sampled stations would show a HQ greater than 1. However, the Region III screening value is based on a single study. Because the toxic mode of action is relatively well understood for organic compounds such as chlorobenzene, SCVs can be derived based on laboratory data sets documenting acute responses. This approach allowed for the consideration of eight LC50s reported from three independent laboratory studies in the derivation of SCVs. The fact that a comparable SCV can be derived using a ACR of 10 or 2.6 applied to the laboratory test LC50 data or the QSAR calculated daphnid value published by USEPA (1995) (which itself is higher than the USEPA Region III screening value) lends confidence to the toxicity values used in this assessment and to the conclusions reached.

Second, there is some uncertainty regarding the degree to which the pore water measurements are representative of potential exposure concentrations in benthic organisms. The uncertainty stems from both measurement technique and potential temporal variability. However, the fact that both well points and equilibrium sampling techniques (i.e., peepers) were used, and overall found comparable results, lends confidence to the data. With regard to the temporal representativeness of the data, because the groundwater containment system is active year round, significant variation in the discharge of any groundwater that is not captured by the system is not expected.

Finally, because the pore water sampling was limited to chlorobenzene, the pore water data cannot be used to directly predict the risks of all COCs potentially associated with groundwater discharge from the Site. The primary purpose of the pore water sampling program was to determine the effectiveness of the groundwater extraction system in controlling discharge. Chlorobenzene was used as an indicator chemical to address this question given its high concentration and spatial prevalence in groundwater, and its high mobility relative to all other COCs. Comparison of the pore water chlorobenzene data to adjacent, shoreline groundwater chlorobenzene data (Tables 4 and 5) provides a means to assess the degree of dilution/attenuation that occurs as groundwater discharges from the Site. Risk posed by COCs other than chlorobenzene can be conservatively estimated based on the concentrations measured in shoreline groundwater and the degree of attenuation/dilution calculated from the chlorobenzene data.

To do this, SCVs were calculated for all other Site groundwater COCs for which toxicity data are available and compared to the average and maximum of detected COC concentrations measured in Site groundwater during the November 2008, October 2011, February 2012, and

July 2012 sampling events (Table 7). Although the SCVs are not applicable strictly to groundwater, a comparison of groundwater COC concentrations to SCVs can provide a preliminary conservative assessment to determine if groundwater discharge from the Site is likely to result in pore water COC concentrations that pose a risk to benthic organisms. The SCVs were derived using data from USEPA's ECOTOX database and methods comparable to those used to derive the SCVs for chlorobenzene. A few of the other COCs are polar narcotic compounds (compared to nonpolar chlorobenzene). In these instances, the ACR of 9.8 developed by Roex et al. (2000) was used and is essentially the same as the default USEPA ACR of 10. Attachment B presents the supporting data used for the SCV calculations.

Only ethylbenzene, 1,2,4-trichlorobenzene, 2-chlorophenol, 2-methylphenol, and 4-nitrophenol were detected in groundwater at concentrations above their respective SCVs. Ethylbenzene was detected above the SCV calculated based on a conservative ACR of 10 in only 4 of the 240 groundwater samples in which it was analyzed. All of the detections were from samples collected from well MW-28 located near the shoreline (Figure 5). In each of these samples, groundwater concentrations were elevated by no more than a factor of 2 above the conservative SCV. 1,2,4-Trichlorobenzene was detected above the SCV calculated based on the conservative ACR of 10 in only 4 of the 239 groundwater samples in which it was analyzed. All four of the detections were from samples collected from well MW-4, which is located well away from the shoreline (Figure 5). As was the case with ethylbenzene, 1,2,4-trichlorobenzene concentrations in these wells were less than a factor of 2 above the SCV. Neither ethylbenzene nor 1,2,4trichlorobenzene were detected in groundwater at a concentration above the SCVs calculated based on an ACR of 2.6. 2-Chlorophenol, 2-methylphenol, and 4-nitrophenol were each detected above the SCVs in only 1 of 239 samples in which these chemicals were analyzed. In each instance, the measured groundwater concentration was a factor of 2 or less above the SCV derived using either the USEPA-based ACR of 10 or the narcosis-based ACR of 9.8 for polar narcotics (Roex et al. 2000).

Because the groundwater COCs have the same mode of action, hazard indices (HIs)⁹ were calculated to assess the potential cumulative risk related to all site-related groundwater COCs other than chlorobenzene. HIs calculated based on shoreline groundwater data are less than 1 in all but 6 of the 77 shoreline groundwater samples, and the maximum HI was only 4 (Table 8). The pore water and groundwater data for chlorobenzene demonstrate that the combined influence of the groundwater recovery system and natural attenuation processes substantially limit the expression of groundwater COCs in pore water adjacent to the Site. The combination of these factors resulted in pore water chlorobenzene concentrations that were on average 29 times lower than the concentrations in all shoreline groundwater (Table 4) and >29,000 times lower than the concentrations in shoreline wells where the greatest impacts are present (Table 5). Given this level of dilution/attenuation and the fact that the occurrence of HIs >1 in undiluted shoreline groundwater is infrequent and limited to HIs ≤4, groundwater discharge of

 $^{^{9}}$ The sum of all chemical-specific hazard quotients with corresponding screening values.

COCs other than chlorobenzene from the Site is highly unlikely to contribute substantively to benthic risk in pore water in Curtis Bay or Stonehouse Cove.

4.5 SCIENTIFIC MANAGEMENT DECISION POINT

Following USEPA ecological risk assessment guidance, a scientific management decision point is reached at the conclusion of a SLERA. The decision point defines whether additional study beyond the SLERA is needed, including the need for a full baseline ecological risk assessment at the Site. Analysis of the data indicates that transport of COCs with groundwater discharge from the Site to pore water is substantially limited by the groundwater recovery system and natural attenuation processes, and that the limited groundwater discharge occurring at the Site does not pose an unacceptable risk to benthic organisms adjacent to the Site. This conclusion holds for chlorobenzene, which was sampled in nearshore and offshore pore water, and based on extrapolation, for the other COCs that are present in groundwater but not sampled in pore water.

Although there are some uncertainties associated with the analysis, the conditions at the Site and the low levels of COCs in groundwater relative to toxicity standards lend strength to the conclusion of the SLERA that groundwater at the Site does not pose an unacceptable risk to ecological receptors. Based on this, no additional study is needed to characterize ecological risks from groundwater discharge at the Site.

5 CONCLUSIONS AND RECOMMENDATIONS

Based on the pore water sampling performed at the Site, the concentrations of chlorobenzene in pore water are low relative to the concentrations in groundwater in shoreline wells, indicating that the combined influences of recovery system and attenuation processes along the flow path act to limit chlorobenzene concentrations in pore water to below SCVs based on risk to marine benthic organisms. The recovery system, coupled with natural attenuation, is expected to be achieving a similar, if not greater, performance level with respect to preventing the offsite migration of other Site COCs in groundwater. Given the observed level of attenuation, combined with the low concentrations of SCVs for four other COCs in groundwater, this analysis demonstrates that groundwater discharge from the Site is highly unlikely to result in COC concentrations that are above SCVs in pore water in Curtis Bay or Stonehouse Cove.

Based on these findings, no additional study is needed to characterize potential impacts of Site groundwater to pore water at the Site.

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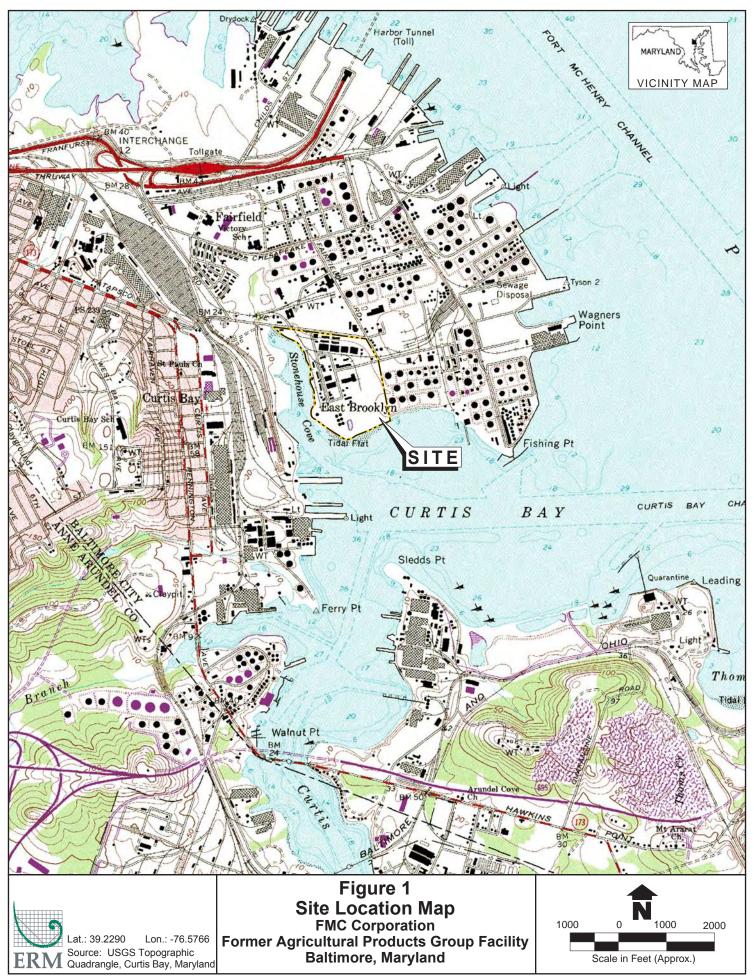
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FIGURES





TITLE:

FINAL PORE WATER SAMPLING STATIONS
FMC BALTIMORE, FORMER AGRICULTURAL PRODUCTS DIVISION GROUP FACILITY
BALTIMORE, MARYLAND

DWN:	DES.:	FIGURE NO.:
EMJ/SRV		2
CHKD:	APRD:	
PB		W.O. No.:
DATE:	REV.:	0142390
SEPT 2012	SEPT 2012	Drawing No.: 0142390.003

ENVIRONMENTAL RESOURCES MANAGEMENT, INC.

PRINCETON CROSSROADS CORPORATE CENTER 250 PHILLIPS BLVD. SUITE 280 EWING, NEW JERSEY 08618

Figure 3 Push Point Pore Water Sampling Point General Schematic Former Agricultural Products Group Facility FMC Corporation Baltimore, Maryland

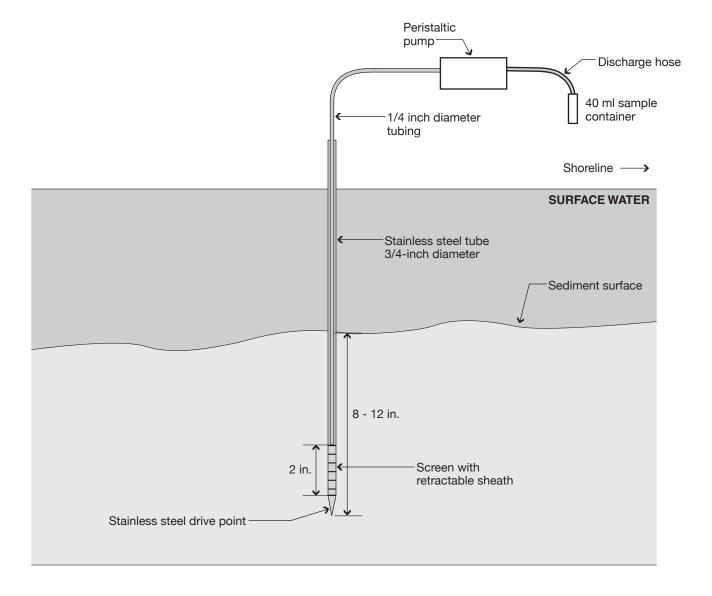
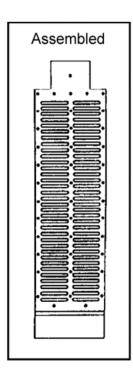
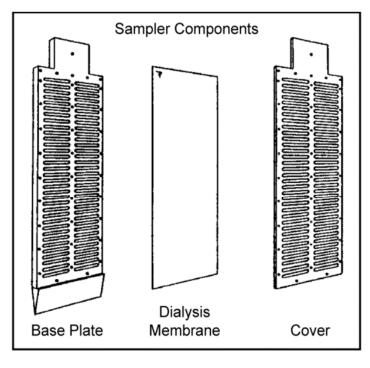




Figure 4
Small Volume Peeper General Schematic
Former Agricultural Products Group Facility
FMC Corporation
Baltimore, Maryland







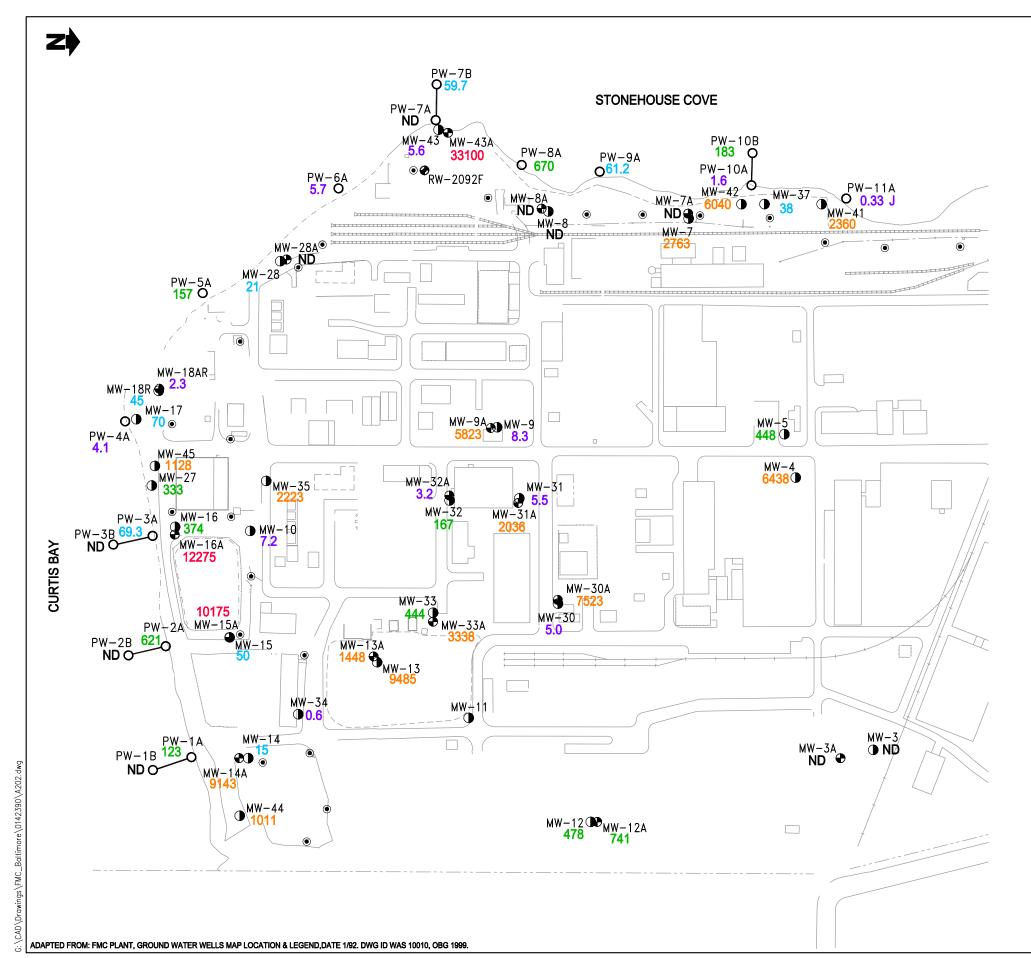


FIGURE 5 CHLOROBENZENE CONCENTRATION DISTRIBUTION FMC BALTIMORE, FORMER AGRICULTURAL PRODUCTS GROUP FACILITY BALTIMORE, MARYLAND

LEGEND

 \circ

PROPERTY LINE

FENCE

DEEP MONITORING WELL

SHALLOW MONITORING WELL

RECOVERY WELL

PORE WATER SINGLE SAMPLING LOCATION

ND CHLOROBENZENE CONCENTRATION ND

1 CHLOROBENZENE CONCENTRATION <10 ug/l

10 CHLOROBENZENE CONCENTRATION 10 -100 ug/l
100 CHLOROBENZENE CONCENTRATION 100 -1000 ug/l

1000 CHLOROBENZENE CONCENTRATION 1000 -10000 ug/l

PORE WATER SAMPLE TRANSECT LOCATION

10000 CHLOROBENZENE CONCENTRATION 10000 - 100000 ug/l

ND NOT DETECTED AT THE LABORATORY DETECTION AND/OR REPORTING LIMIT

J INDICATES AN ESTIMATED VALUE

NOT

- CHLOROBENZENE CONCENTRATIONS AT MONITORING WELL LOCATIONS ARE AN AVERAGE MEASURED IN THE WELL DURING THE NOVEMBER 2008, OCTOBER 2011, FEBRUARY 2012. AND JULY 2012 MONITORING EVENTS.
- 2. CHLOROBENZENE CONCENTRATIONS AT PORE WATER LOCATIONS ARE RESULTS REPORTED FOR THE SEPTEMBER 2011 AND JUNE 2012 SAMPLING EVENTS.
- 3. RESULTS ARE REPORTED IN MICROGRAMS PER LITER (UG/L).



TABLES

Table 1. Field Parameter Data

	Pore Water ^a						Surface Water			Ave. Site Groundwater ^b			Target Pore Water Range ^c	
Station	Sampling Method	Date	Northing	Easting	Sample Depth (inch BML)	Temp (°c)	Cond (µS/cm)	Water Depth (ft)	Temp (°c)	Cond (µS/cm) Before After	Upgradient Wells	Temp (°c)	Cond (µS/cm)	Cond (µS/cm)
PW-1A	Well Point	09/16/11	568301	1432966	12	23.9	6,550	0	23.7	4,156	MW-14, MW-14A, MW-44	17.5	2,109	2,109 - 3,133
PW-1B	Well Point	09/19/11	568249	1433003	12	21.2	10,370	4.3	22.6	5,328	MW-14, MW-14A, MW-44	17.5	2,109	2,109 - 3,719
PW-2A	Well Point	09/16/11	568198	1432749	12	22.3	1,259	0	22.5	4,377	MW-15	17.4	12,345	8,361 - 12,345
											MW-15A	17.8	1,915	1,915 - 3,146
PW-2B	Well Point	09/19/11	568121	1432794	12	23.1	11,120	5	21.5	5,146	MW-15	17.4	12,345	8,746 - 12,345
											MW-15A	17.8	1,915	1,915 - 3,531
PW-3A	Well Point	09/16/11	568122	1432570	12	19.4	11,170	0	21.6	4,262	MW-16	19.4	16,317	10,290 - 16,317
											MW-16A	17.9	2,306	2,306 - 3,284
PW-3B	Well Point	09/16/11	568056	1432595	12	24.1	1,261	2.3	24	4,444	MW-16	19.4	16,317	10,381 - 16,317
											MW-16A	17.9	2,306	2,306 - 3,375
PW-4A	Well Point	09/14/11	568005	1432351	10	29.3	6,270	1.8	26.3	2,742	MW-17	16.8	1,646	1,646 - 2,194
PW-5A	Well Point	09/14/11	568138	1432012	10	22.1	4,024	2.1	26.2	3,661	MW-28	17.1	4,593	4,127 - 4,593
											MW-28A, MW18R, MW-18AR	16.2	581	581 - 2,121
PW-6A	Well Point	09/14/11	568330	1431781	10	26.5	1,030	4	25.7	3,790	MW-28	17.1	4,593	4,192 - 4,593
											MW-28A, MW-43, MW-43A	16.4	1,067	1,067 - 2,429
PW-7A	Well Point	09/14/11	568488	1431585	10	38.9	912	5	24.6	4,162	MW-43, MW-43A	16.4	1,490	1,490 - 2,826
PW-7B	Well Point	09/13/11	568474	1431518	10	27.1	2063	9.5	25.7	4,709	MW-43, MW-43A	16.4	1,490	1,490 - 3,100

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Page 1 of 2

Pore Water Sampling Report
Former Agricultural Products Group Facility

Table 1. Field Parameter Data

Pore Water ^a								Surface Water			Ave. Site Groundwater ^b			Target Pore Water Range ^c
Station	Sampling Method	Date	Northing	Easting	Sample Depth (inch BML)	Temp (°c)	Cond (µS/cm)	Water Depth (ft)	Temp (°c)	Cond (µS/cm) Before After	Upgradient Wells	Temp (°c)	Cond (µS/cm)	Cond (µS/cm)
PW-8A	Small Volume Peeper	06/19/12	568667	1431594	8 - 12	28.5	7835	2.8	25.1	11,801	MW-43, MW-43A, MW-8A	16.2	1,178	1,178 - 6,490
											MW-8	16.6	23,223	17,512 - 23,223
PW-9A	Small Volume Peeper	06/19/12	568837	1431613	8 - 12	28.1	6,556	3.2	24.9	11,738	MW-7, MW-7A, MW- 8A	17.0	770	770 - 6,254
											MW-8	16.6	23,223	17,481 - 23,223
PW-10A	Small Volume Peeper	06/19/12	569155	1431549	8 - 12	26.6	9,012	2	24.8	11,788	MW-42 & MW-37	15.9	1,060	1,060 - 6,424
PW-10B	Small Volume Peeper	06/19/12	569136	1431504	8 - 12	26.7	10,210	4.3	24.6	11,487	MW-42 & MW-37	15.9	1,060	1,060 - 6,274
PW-11A	Small Volume Peeper	06/19/12	569328	1431526	8 - 11	33.1	13,230	2	24.5	11,616	MW-41	18.1	6,512	6,512 - 9,064
											MW-37 & MW-42	15.9	1,063	1,063 - 6,340

Notes:

BML = below mud line

Cond = specific conductivity

Temp = temperature

μS/cm = microsiemens per centimeter

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Page 2 of 2

^a Pore water temperature and specific conductivity measurements for stations sampled by well points are based on final measurement at the end of purging.

^b Groundwater values are calculated mean values from the November 2008, October 2011, and February/March 2012 recorded data for the nearest, upgradient groundwater monitoring well(s). Wells with similar values were averaged. Separate pore water target ranges calculated when adjacent wells exhibited substantively different field parameter values.

^c Average site ground water values were calculated from wells closest to the pore water sampling locations. Shaded values indicate that the measured pore water specific conductivity was within the target range, indicating a provenance of groundwater.

Pore Water Sampling Report December 19, 2012 Former Agricultural Products Group Facility

Table 2. Pore Water Analytical Results - September 2011

Station:	PW-01A	PW-01B	PW-02A	PW-02B	PW-03A	PW-03A (DUP	PW-03B	PW-04A	PW-05A	PW-06A	PW-07A	PW-07B	Trip Blank	Rinsate Blank	Trip Blank	Rinsate Blank	Trip Blank	Trip Blank
Date Sampled:	9/16/2011	9/19/2011	9/16/2011	9/19/2011	9/16/2011	9/16/2011	9/16/2011	9/14/2011	9/13/2011	9/13/2011	9/13/2011	9/13/2011	9/14/2011	9/14/2011	9/15/2011	9/15/2011	9/16/2011	9/19/2011
Units:	ua/L	ua/l	ua/l	µg/L	µg/L	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	ua/l	μg/L
	F-9' -	r 9, -	<u>⊬</u> 9/-	<u> </u>	<u>⊬9</u> /∟	ру/	<u>μ</u> 9/L	μ <u>g</u> /∟	<u>μ</u> 9/∟	<u>μ</u> 9/∟	μg/∟	μ <u>g</u> / L	μg/∟	μg/L	μg/∟	μу/∟	μ9/ Ε	μg/L

Notes: DUP = blind duplicate

ND = not detected at the laboratory detection limit shown in parentheses µg/L = micrograms/liter (same as parts per billion [ppb])

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Table 3. Pore Water Analytical Results - June 2012

Station:	PW-08A	PW-08A (DUP)	PW-09A	PW-10A	PW-10B	PW-11A	Rinsate Blank	Trip Blank
Date Sampled:	6/19/2012	6/19/2012	6/19/2012	6/19/2012	6/19/2012	6/19/2012	6/19/2012	6/19/2012
Units:	μg/L	μg/L	μg/L	µg/L	µg/L	µg/L	µg/L	µg/L
Chlorobenzene	670	584	61.2	1.6	183	0.33 <i>J</i>	ND (0.23)	ND (0.23)

DUP = blind duplicate

J = indicates an estimated value

ND = not detected at the laboratory detection limit shown in parentheses

μg/L = micrograms/liter (same as parts per billion [ppb])

Table 4. Ratio of the Average Chlorobenzene Concentration in Pore Water to the Average Concentration in Shoreline Groundwater Monitoring Wells

Pore Water Chlorobenz Concentration (µg/L)		Groundwater Chlorobenzene Con (μg/L)	centration	Ratio of Groundwater to Pore Water Chlorobenzene Concentration
Average of All Stations	120	Average of All Shoreline Wells ^a	3,433	29
Average of Curtis Bay Stations ^b	110	Average of Wells Along Curtis Bay Shoreline ^c	2,885	26
Average of Stonehouse Cove Stations ^d	133	Average of Wells Along Stonehouse Cove Shoreline ^e	4,031	30

^a Includes wells MW-14, MW-14A, MW-44, MW-16, MW-16A, MW-45, MW-27, MW-17, MW-18R, MW-18AR, MW-28, MW-28A, MW-43, MW-43A, MW-7A, MW-7A, MW-8A, MW-42, MW-37, and MW-41

^b Includes pore water stations PW-1A, PW-1B, PW-2A, PW-2B, PW-3A, PW-3B, PW-4A, PW-5A, and PW-6A

^c Includes wells MW-14, MW-14A, MW-44, MW-16, MW-16A, MW-45, MW-27, MW-17, MW-18R, MW-18AR, MW-28, and MW-28A

^d Includes pore water stations PW-7A, PW-7B, PW-8A, PW-9A, PW-10A, PW-10B, and PW-11A

^e Includes wells MW-43, MW-43A, MW-7, MW-7A, MW-8, MW-8A, MW-42, MW-37, and MW-41

Table 5. Comparison of Chlorobenzene Concentrations in Pore Water to Chlorobenzene Concentrations in Immediately Upgradient Groundwater at the Locations of the Pore Water Transect Stations that are Positioned Offshore of Shoreline Wells with the Highest Historic Chlorobenzene Concentrations

	Pore Water		Upgradient Nearsl	nore Groundwater	<u></u>
Station ^a	Chlorobenzene Concentration (µg/L)	Location	Shoreline Wells Located Immediately Upgradient	Chlorobenzene Concentration (µg/L) ^b	Ratio of Groundwater to Pore water Concentration
PW-1A	123	Curtis Bay	MW-14A	9,143	74
PW-1B	0.22 <i>U</i>	Curtis Bay	MW-14A	9,143	41,557
PW-2A	621	Curtis Bay	MW-15A	10,175	16
PW-2B	0.22 <i>U</i>	Curtis Bay	MW-15A	10,175	46,250
PW-3A	75.2 ^c	Curtis Bay	MW-16A	12,275	163
PW-3B	0.22 <i>U</i>	Curtis Bay	MW-16A	12,275	55,795
PW-7A	0.22 <i>U</i>	Stonehouse Cove	MW-43A	33,100	150,455
PW-7B	59.7	Stonehouse Cove	MW-43A	33,100	554
PW-10A	1.6	Stonehouse Cove	MW-42	6,040	3,775
PW-10B	183	Stonehouse Cove	MW-42	6,040	33
				Average	29,867

U = Chlorobenzene below the laboratory detection limit $\mu g/L =$ micrograms/liter (same as parts per billion [ppb])

^a Includes the sampling stations in the five, 2-station transects positioned immediately downgradient of shoreline monitoring wells that have historically exhibited the highest chlorobenzene concentrations in groundwater

^b The average concentration measured in the well during the November 2008, October 2011, February 2012, and July 2012 monitoring events

^c Average of duplicate samples

Table 6. Summary of Hazard Quotients for Maximum and Average Chlorobenzene Concentrations in Pore Water across Curtis Bay and Stonehouse Cove

	C	hlorobenzene Cond	centration (µg/L)			Hazard	Quotient	
Shoreline Area ^a	Max Concentration	Mean Concentration	SCV ^b USEPA	SCV ^c Roex	Max ^b	Max ^c	Mean ^b	Mean ^c
Curtis Bay	621	106	1,100	4,200	0.6	0.1	0.1	0.03
Stonehouse Cove	670	195	1,100	4,200	0.6	0.2	0.2	0.05

Sources:

Roex et al. (2000) USEPA (1991)

Notes:

Max = maximum

SCV = secondary chronic value

μg/L = micrograms per liter (parts per billion)

^a Curtis Bay results across pore water sampling locations 1-6 (Sept. 2011).

Stonehouse Cove results across pore water sampling locations 7-11 (Sept. 2011 - location 7, June 2012 - locations 8-11).

^b Hazard quotient calculations for the USEPA-based SCV using an acute-to-chronic ratio of 10 (USEPA 1991).

^c Hazard quotient calculations for the narcosis non-polar-based SCV using an acute-chronic ratio of 2.6 (Roex et al. 2000).

Pore Water Sampling Report

Former Agricultural Products Group Facility

December 19, 2012

Table 7. Comparison of Chemical Concentrations in Site Groundwater to Secondary Chronic Values For Marine Benthic Invertebrates

	SCV (µg/L)	SCV (μg/L)	Groundwater Co	ncentration (µg/L)c		Percentage of	Percentage Greater Than
Parameter	(Roex et al. 2000) ^a	(USEPA 1991) ^b	Average	Maximum	Number of Samples	Detects	SCV
Benzene	19243	5003	134	1300	240	52.1%	0.0%
Bromoform	9791	2546	ND	ND	240	0.0%	0.0%
Chloroethane	NA	NA	9	46	240	8.3%	NA
Chloroform	NA	NA	13	160	240	30.4%	NA
cis-1,3-Dichloropropene	NA	NA	10	10	240	0.4%	NA
Ethylbenzene	4760	1238	146	2600	240	38.8%	1.7%
Methylene chloride	64101	16666	11	170	240	8.8%	0.0%
trans-1,3-Dichloropropene	NA	NA	3	3	240	0.4%	NA
Trichlorofluoromethane	NA	NA	3	6	240	0.8%	NA
1,2,4-Trichlorobenzene	420	109	30	203	239	18.0%	1.7%
1,2-Dichlorobenzene	4546	1182	68	853	240	30.8%	0.0%
1,3-Dichlorobenzene	1115	290	4	20	239	10.0%	0.0%
1,4-Dichlorobenzene	12354	3212	222	2500	240	43.3%	0.0%
2,4,6-Trichlorophenol	315	309	1	1	235	0.4%	0.0%
2,4-Dinitrophenol	2955	2896	ND	ND	239	0.0%	0.0%
2-Chlorophenol	541	530	36	610	239	10.0%	0.4%
2-Methylphenol	1312	1286	170	2670	239	7.1%	0.4%
2-Nitrophenol	565	554	305	1200	239	2.9%	0.4%
4-Chloro-3-methylphenol	NA	NA	ND	ND	239	0.0%	NA
Aniline	NA	NA	5642	69000	238	8.0%	NA
bis(2-Chloroethoxy)methane	NA	NA	37	99	239	1.7%	NA
bis(2-Chloroisopropyl)ether	NA	NA	ND	ND	181	0.0%	NA
bis(2-Ethylhexyl)phthalate	NA	NA	6	11	239	0.8%	NA
Butylbenzylphthalate	NA	NA	ND	ND	239	0.0%	NA
Chrysene	666	173	2	7	239	2.1%	0.0%
Diethylphthalate	NA	NA	3	12	239	4.2%	NA
Di-n-butylphthalate	NA	NA	4	7	239	0.8%	NA
Pentachlorophenol	83	81	15	35	239	2.1%	0.0%
Phenol	8571	8400	373	1800	239	4.2%	0.0%

Sources:

Roex et al. (2000) USEPA (1991)

Notes

Bold values indicate that the concentration exceeds the minimum SCV

NA = data not available to calculate a SCV

ND = chemical was not detected above analytical detection limits in groundwater

SCV = secondary chronic value calculated based on LC50 data published in ECOTOX for marine benthic invertebrates

μg/L = microgram per liter

 $\mu g/L^3$ = microgram per cubic liter

Integral Consulting Inc. Page 1 of 1

^aCalculated from acute-chronic ratios (ACRs) provided by Roex et al. (2000). An ACR of 9.8 was used for polar narcosis effects, while an ACR of 2.6 was used for non-polar narcosis effects.

^bDerived from USEPA's water quality technical guidance (USEPA 1991) using the suggested ACR of 10.

^cAverage and maximum of detected concentrations in Site groundwater samples collected from the Site during the November 2008, October 2011, February 2012, and July 2012 sampling events.

Table 8. Hazard Index Summary for Groundwater Chemicals of Concern^a Compared with Screening Values^b Developed using USEPA 1991 Methodology

Total Samples	Min HI	Max HI	Average HI	# HIs > 1
77	0.00007	4	0.4	6

HI = hazard index

^a Chlorobenzene excluded from analysis along with interior monitoring wells not representative of potential groundwater discharge from the Site.

^b Screening values are conservative secondary chronic values adapted from USEPA's 1991 ambient water quality guidelines.

APPENDIX A

ECOTOX OUTPUT OF MARINE ACUTE TOXICITY DATA FOR CHLOROBENZENE (USEPA 2007)

ECOTOX Output of Marine Acute Toxicity Data for Chlorobenzene (USEPA 2007)

CAS Number	Chemical Name	Species Scientific Name	Species Common Name	Species Group		Chemical Analysis		Test Location	Observed Duration Mean (Days)	Observed Duration Units (Days)	Endpoint	Conc 1 Mean (μg/L)	Conc 1 Units (μg/L)	; Author	Title	Source	Publication Year
108907	Chlorobenzene	Americamysis bahia	Opossum Shrimp	Crustaceans	NR	U	SW	LAB	1	d	LC50	24,700	μg/L	Syracuse Research Corp.	Results of Continuous Exposure of Fathead Minnow Embryo to 21 Priority Pollutants	EPA/OTS Doc.#40-7848049:46 p.	2000
108907	Chlorobenzene	Americamysis bahia	Opossum Shrimp	Crustaceans	NR	U	SW	LAB	4	d	LC50	16,400	μg/L	Syracuse Research Corp.	Results of Continuous Exposure of Fathead Minnow Embryo to 21 Priority Pollutants	EPA/OTS Doc.#40-7848049:46 p.	2000
108907	Chlorobenzene	Penaeus chinensis	Fleshy Prawn	Crustaceans	NR	U	NR	LAB	4	d	LC50	1,720	μg/L	Yin,H., and J. Lu	Toxic Effect of Two Organic Toxicants on Penaeus chinensis	Mar. Sci.1:59-62	1993
108907	Chlorobenzene	Cyprinodon variegatus	Sheepshead Minnow	Fish	s	U	sw	LAB	1	d	LC50	20,000	μg/L	Heitmuller,P.T., T.A. Hollister, and P.R. Parrish	Acute Toxicity of 54 Industrial Chemicals to Sheepshead Minnows (Cyprinodon variegatus)	Bull. Environ. Contam. Toxicol.27(5): 596-604	1981
108907	Chlorobenzene	Cyprinodon variegatus	Sheepshead Minnow	Fish	S	U	sw	LAB	2	d	LC50	8,900	μg/L	Heitmuller,P.T., T.A. Hollister, and P.R. Parrish	Acute Toxicity of 54 Industrial Chemicals to Sheepshead Minnows (Cyprinodon variegatus)	Bull. Environ. Contam. Toxicol.27(5): 596-604	1981
108907	Chlorobenzene	Cyprinodon variegatus	Sheepshead Minnow	Fish	s	U	SW	LAB	4	d	LC50	10,000	μg/L	Heitmuller,P.T., T.A. Hollister, and P.R. Parrish	Acute Toxicity of 54 Industrial Chemicals to Sheepshead Minnows (Cyprinodon variegatus)	Bull. Environ. Contam. Toxicol.27(5): 596-604	1981
108907	Chlorobenzene	Cyprinodon variegatus	Sheepshead Minnow	Fish	s	U	SW	LAB	4	d	LC50	10,500	μg/L	Syracuse Research Corp.	Results of Continuous Exposure of Fathead Minnow Embryo to 21 Priority Pollutants	EPA/OTS Doc.#40-7848049:46 p.	2000
108907	Chlorobenzene	Americamysis bahia	Opossum Shrimp	Crustaceans	NR	U	sw	LAB	4	d	LC50	16,400	μg/L	Yin,H., and J. Lu	Toxic Effect of Two Organic Toxicants on Penaeus chinensis	Mar. Sci.1:59-62	1993

Integral Consulting Inc. Page 1 of 1

APPENDIX B

ECOTOX OUTPUT OF MARINE ACUTE TOXICITY DATA FOR GROUNDWATER CHEMICALS OF CONCERN (USEPA 2007)

Charles	*Chlorobenzene da	ta presented in Appendix A	T-																
Accordance Procession Pro							Exposure	Duration	Evnosure	Chemical		Conc		Tost	Reference				Publication
2-0-20-20-20-20-20-20-20-20-20-20-20-20-	CAS Number	Chemical Name	Species Scientific Name	Species Common Name	Species Group	Endpoint					Concentration						Title	Source	
2-0-20-20-20-20-20-20-20-20-20-20-20-20-			<u> </u>	·															1
2.4 Dirightons	51285	2 4-Dinitrophenol	Artemia salina	Brine shrimp	Crustaceans	LC50	0.5	d	NR	U	24 000	ua/l	SW	LAB	16436	, , ,			1996
24 Designation Palamonistics of the palamonistics	0.200	2, : 5	7 intermite delinite	2	O. doladou.io	2000	0.0				2.,000	µg/∟	1	2.12	.0.00	Gariorioz i ortani			1000
24 Chiespeed Passenderie pro Passenderie pro Consocious Co																	to Grass Shrimp (Palaemonetes spp.)		
	E400E	2.4 Dinitrophonol	Dalaamanataa an	• •	Crustasasas	LOFO	4	4			46,000	- //	CVA	LAD	42072				
Date 1	51265	2,4-Dinitrophenoi	Palaemonetes sp.	prawn	Crustaceans	LC30		u	5	IVI	46,000	μg/L	SVV	LAB	13273	L.L. Marking	· · · · · · · · · · · · · · · · · · ·	` '	1994
Application																Brecken-Folse, J.A., F.L			
Part																	•		
Application Control	51285	2,4-Dinitrophenol	Palaemonetes sp.	prawn	Crustaceans	LC50	1	d	S	М	61,700	μg/L	SW	LAB	13273	L.L. Marking	· · · · · · · · · · · · · · · · · · ·	` '	1994
2.4 Christophared Polaministers are Constraint performance Cons																Brecken-Folse I A F I			
Comparison Com				Grass shrimp,freshwater														Environ.Toxicol.Che	
Company Comp	51285	2,4-Dinitrophenol	Palaemonetes sp.	prawn	Crustaceans	LC50	1	d	S	М	54,300	μg/L	SW	LAB	13273	L.L. Marking	(Cyprinodon variegatus) as Affected by	m. 13(1):67-77	1994
2.4 Dinitigation Palesmonotent up																		1	
1/25 2.4 Dinterphenal Pulsemonates sp. prawn Contaceans LO20 1 5 8 M (6,700 g) L 50 LA9 1275 L. Making Copenior variegaliany as Affering by Proposition Copenior variegaliany as				Grass shrimn freshwater														Environ Toxical Che	
	51285	2,4-Dinitrophenol	Palaemonetes sp.	• •	Crustaceans	LC50	1	d	s	М	64,700	μg/L	SW	LAB	13273	, ,	•		
Continue Palementate Pal																	Dinitrophenol, Terbufos and Trichlorfon	1	
1/25 2.4-Drittophenal Palaemonetes sp. prown				One as absing for about a														Facility Tariani Obs	
Consideration Palsemoneters sp. Consideration Country Co	51285	2.4-Dinitrophenol	Palaemonetes sp.	1.7	Crustaceans	LC50	1	d	s	М	66.300	ua/l	sw	LAB	13273		•		
2.4-Drittephenol Palsomoneties sp. Grass shirting freshwater Crustacosins LCS0 1 d S M 03.30 kg/L SW LAB 15773 L1. fluiding L1.		_,		Frence						-	55,555	F9/ =				g		. ,	+
1285 2.4 Dintrophenol Paleernontees sp. prawn Crustaceans LCSO 1 d S M 69.00 gpt SW LAB 13273 LL Marking Coprisode variegates) as Affected by In 13(1)(87-77) 1994																	to Grass Shrimp (Palaemonetes spp.)		
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2,4 Dinitophenol Palaemonetes ap. Grass abrimp, freshwater Custaceans Cost 1 d S M 88.300 egl. SW L8 13275 L. Meding Copyration visings by a Register of Minores Copyration vi																Brecken-Folse, J.A., F.L			
Grass shrimp, freshwater prawn Coustaceans LCSO 1 d S M 70,700 pgt SW LAB 13273 LABridge Grass shrimp, freshwater prawn Grass shrimp, freshwater prawn Coustaceans LCSO 1 d S M 70,700 pgt SW LAB 13273 LABridge Grass shrimp, freshwater prawn Grass shrimp, freshwater prawn Coustaceans LCSO 1 d S M 70,700 pgt SW LAB 13273 LABridge Grass shrimp, freshwater prawn Grass shrimp, freshwater prawn Grass shrimp, freshwater prawn Crustaceans LCSO 1 d S M 70,700 pgt SW LAB 13273 LABridge Grass shrimp, freshwater prawn Grass shrimp,				• •												Mayer, L.E. Pedigo, and	and Sheepshead Minnows		
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Compared Palaemoneles sp. Crustaceans Compared Crustaceans																Brecken-Folse I A F I			
Grass shrimp,freshwater prawn				Grass shrimp,freshwater														Environ.Toxicol.Che	
Grass shrimp freshwater prawn	51285	2,4-Dinitrophenol	Palaemonetes sp.	prawn	Crustaceans	LC50	1	d	S	М	70,700	μg/L	SW	LAB	13273	L.L. Marking	(Cyprinodon variegatus) as Affected by	m. 13(1):67-77	1994
Grass shrimp,freshwater prawn Grass shrimp,freshwater G																Danahar Falsa IA FI		ı	
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Grass shrimp,freshwater prawn Crustaceans LC50 1 d S M 77,300 µg/L SW LAB 13273 LL. Marking Cyprinodon variegatus) as Affected by m. 13(1):67-77 1994 Fig. 2.4-Dinitrophenol Palaemonetes sp. Prawn Crustaceans LC50 1 d S M 54,300 µg/L SW LAB 13273 LL. Marking Cyprinodon variegatus) as Affected by m. 13(1):67-77 1994 Fig. 2.4-Dinitrophenol Palaemonetes sp. Prawn Crustaceans LC50 1 d S M 54,300 µg/L SW LAB 13273 LL. Marking Cyprinodon variegatus) as Affected by m. 13(1):67-77 1994 Fig. 2.4-Dinitrophenol Palaemonetes sp. Prawn Crustaceans LC50 1 d S M 54,300 µg/L SW LAB 13273 LL. Marking Cyprinodon variegatus) as Affected by m. 13(1):67-77 1994 Fig. 2.4-Dinitrophenol Palaemonetes sp. Prawn Crustaceans LC50 1 d S M 54,300 µg/L SW LAB 13273 LL. Marking Cyprinodon variegatus) as Affected by m. 13(1):67-77 1994 Fig. 2.4-Dinitrophenol Palaemonetes sp. Prawn Crustaceans LC50 1 d NR U 3,400 µg/L SW LAB 16436 Sanchez-Fortun Sensitivity of Three Age Classes of Artemia salina Larvae to Several Phenolic Compounds 278 Farityon. Toxicol. Che m. 13(1):67-77 1994 Fig. 2.4-Dinitrophenol Artemia salina Brine shrimp Crustaceans LC50 1 d NR U 3,400 µg/L SW LAB 16436 Sanchez-Fortun Sensitivity of Three Age Classes of Artemia salina Larvae to Several Phenolic Compounds 278 Farityon. Toxicol. Che m. 13(1):67-77 1994 Farityon. Toxicol. Che																			
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Grass shrimp,freshwater prawn Crustaceans LC50 1 d S M 54,300 µg/L SW LAB 13273 LL Marking Crustaceans LC50 1 d S M 54,300 µg/L SW LAB 13273 LL Marking Crustaceans LC50 1 d S M 54,300 µg/L SW LAB 13273 LL Marking Crustaceans LC50 1 d S M 54,300 µg/L SW LAB 13273 LL Marking Crustaceans LC50 1 d S M 54,300 µg/L SW LAB 13273 LL Marking Crustaceans LC50 1 d NR U 3,400 µg/L SW LAB 16436 Sanchez-Fortun Several Phenolic Compounds Several Phenolic Compounds Several Phenolic Compounds Grass Shrimp, freehwater Crustaceans LC50 1 d NR U 3,400 µg/L SW LAB 16436 Sanchez-Fortun Grass Shrimp, freehwater Crustaceans LC50 1 d NR U 3,400 µg/L SW LAB 16436 Sanchez-Fortun Several Phenolic Compounds Grass Shrimp, freehwater Crustaceans LC50 1 d NR U 3,400 µg/L SW LAB 16436 Sanchez-Fortun Several Phenolic Compounds Grass Shrimp, freehwater Crustaceans LC50 1 d NR U 3,400 µg/L SW LAB 16436 Sanchez-Fortun Several Phenolic Compounds Grass Shrimp, freehwater Crustaceans LC50 1 d NR U 3,400 µg/L SW LAB 16436 Sanchez-Fortun Several Phenolic Compounds Several Phenolic Compounds Several Phenolic Compounds Grass Shrimp, freehwater Crustaceans LC50 1 d NR U 3,400 µg/L SW LAB 16436 Sanchez-Fortun Several Phenolic Compounds	51285	2,4-Dinitrophenol	Palaemonetes sp.		Crustaceans	LC50	1	d	s	М	77,300	μg/L	SW	LAB	13273				
Grass shrimp,freshwater prawn Crustaceans LC50 1 d S M 54,300 µg/L SW LAB 13273 LL. Marking (Cyprinodon variegatus) as Affected by Finitron. Toxicol. Che m. 13(1):67-77 1994 S1285 2,4-Dinitrophenol Palaemonetes sp. Dinitrophenol Palaemonetes sp. Drawn Crustaceans LC50 1 d S M 54,300 µg/L SW LAB 13273 LL. Marking (Cyprinodon variegatus) as Affected by Finitron. Toxicol. Che m. 13(1):67-77 1994 S1285 2,4-Dinitrophenol Artemia salina Brine shrimp Crustaceans LC50 1 d NR U 3,400 µg/L SW LAB 16436 Sanchez-Fortun Several Phenolic Compounds 278 S1285 2,4-Dinitrophenol Artemia salina Brine shrimp Crustaceans LC50 1 d NR U 3,400 µg/L SW LAB 16436 Sanchez-Fortun Several Phenolic Compounds 278 S1285 2,4-Dinitrophenol Artemia salina Brine shrimp Crustaceans LC50 1 d NR U 3,400 µg/L SW LAB 16436 Sanchez-Fortun Several Phenolic Compounds 278 S1285 2,4-Dinitrophenol Artemia salina Brine shrimp Crustaceans LC50 1 d NR U 3,400 µg/L SW LAB 16436 Sanchez-Fortun Several Phenolic Compounds 278 S1285 2,4-Dinitrophenol Artemia salina Brine shrimp Crustaceans LC50 1 d NR U 3,400 µg/L SW LAB 16436 Sanchez-Fortun Several Phenolic Compounds 278 S1285 2,4-Dinitrophenol Artemia salina Brine shrimp Crustaceans LC50 1 d NR U 3,400 µg/L SW LAB 16436 Sanchez-Fortun Several Phenolic Compounds 278 S1285 2,4-Dinitrophenol Artemia salina Brine shrimp Crustaceans LC50 1 d NR U 3,400 µg/L SW LAB 16436 Sanchez-Fortun Several Phenolic Compounds 278 S1285 2,4-Dinitrophenol Artemia salina Brine shrimp Crustaceans LC50 1 d NR U 3,400 µg/L SW LAB 16436 Sanchez-Fortun Several Phenolic Compounds 278 S1285 2,4-Dinitrophenol Artemia salina Larvae to Sanchez-Fortun Several Phenolic Compounds 278 S1285 2,4-Dinitrophenol Artemia salina Larvae to Sanchez-Fortun Several Phenolic Compounds 278 S1285 2,4-Dinitrophenol Artemia salina Larvae to Sanchez-Fortun Several Phenolic Compounds 278 S1285 2,4-Dinitrophenol Artemia salina Larvae to Sanchez-Fortun Several Phenolic Compounds 278 S1285 2,4-Dinitrophenol Artemia salina Larvae to Sanchez-Fortun Several																		1	1
1285 2,4-Dinitrophenol Palaemonetes sp. prawn Crustaceans LC50 1 d S M 54,300 µg/L SW LAB 13273 LL Marking (Cyprinodon variegatus) as Affected by m. 13(1):67-77 1994 Dinitrophenol Tribulors and Trichlorfon to Grass Shrimp (Palaemonetes sp.) Grass shrimp, freshwater prawn Crustaceans LC50 1 d S M 54,300 µg/L SW LAB 13273 LL Marking (Cyprinodon variegatus) as Affected by m. 13(1):67-77 1994 Dinitrophenol to Grass Shrimp (Palaemonetes sp.) Grass shrimp, freshwater prawn Crustaceans LC50 1 d S M 54,300 µg/L SW LAB 13273 LL Marking (Cyprinodon variegatus) as Affected by m. 13(1):67-77 1994 Dinitrophenol to Grass Shrimp (Palaemonetes sp.) And Sheepshead Minnows (Cyprinodon variegatus) as Affected by m. 13(1):67-77 1994 Dinitrophenol to Grass Shrimp (Palaemonetes sp.) And Sheepshead Minnows (Cyprinodon variegatus) as Affected by m. 13(1):67-77 1994 Dinitrophenol to Grass Shrimp (Palaemonetes sp.) And Sheepshead Minnows (Cyprinodon variegatus) as Affected by m. 13(1):67-77 1994 Dinitrophenol to Grass Shrimp (Palaemonetes sp.) And Sheepshead Minnows (Cyprinodon variegatus) as Affected by m. 13(1):67-77 1994 Dinitrophenol to Grass Shrimp (Palaemonetes sp.) And Sheepshead Minnows (Cyprinodon variegatus) as Affected by m. 13(1):67-77 1994 Dinitrophenol to Grass Shrimp (Palaemonetes sp.) And Sheepshead Minnows (Cyprinodon variegatus) as Affected by m. 13(1):67-77 1994 Dinitrophenol to Grass Shrimp (Palaemonetes sp.) And Sheepshead Minnows (Cyprinodon variegatus) as Affected by m. 13(1):67-77 1994 Dinitrophenol to Grass Shrimp (Palaemonetes sp.) And Sheepshead Minnows (Cyprinodon variegatus) as Affected by m. 13(1):67-77 1994 Dinitrophenol to Grass Shrimp (Palaemonetes sp.) And Sheepshead Minnows (Cyprinodon variegatus) as Affected by m. 13(1):67-77 1994 Dinitrophenol to Grass Shrimp (Palaemonetes sp.) And Sheepshead Minnows (Cyprinodon variegatus) as Affected by m. 13(1):67-77 1994 Dinitrophenol to Grass Shrimp (Palaemonetes sp.) And Sheepshead Minnows (Cyprinodon variegatus) as Affected by m. 13(1):67-77 199				One as absing for about a														Facility Tariani Obs	
Grass shrimp,freshwater prawn Crustaceans Cooperative Sensitivity of Three Age Classes of Artemia salina Larvae to Several Phenolic Compounds Comparative Sensitivity of	51285	2.4-Dinitrophenol	Palaemonetes sp.	• •	Crustaceans	LC50	1	d	s	М	54.300	ua/L	SW	LAB	13273				
Grass shrimp,freshwater prawn Grass shrimp,freshwater Grass shrim		_,,		P				-			3 1,000	rg/ =				g	. ,,		1
2,4-Dinitrophenol Palaemonetes sp. prawn Crustaceans LC50 1 d S M 54,300 µg/L SW LAB 13273 L.L. Marking (Cyprinodon variegatus) as Affected by m. 13(1):67-77 1994 Substitute of the practice of the practi																			
2,4-Dinitrophenol Artemia salina Brine shrimp Crustaceans LC50 1 d NR U 3,400 μg/L SW LAB 16436 Barahona, M.V., and S. Sanchez-Fortun Several Phenolic Compounds Toxicol. 56(2):271-278 1996 Crustaceans LC50 1 d NR U 3,400 μg/L SW LAB 16436 Barahona, M.V., and S. Sanchez-Fortun Several Phenolic Compounds Toxicol. 56(2):271-278 1996 Crustaceans LC50 1 d NR U 3,400 μg/L SW LAB 16436 Barahona, M.V., and S. Sanchez-Fortun Several Phenolic Compounds Toxicol. 56(2):271-278 1996 Crustaceans LC50 1 d NR U 3,400 μg/L SW LAB 16436 Barahona, M.V., and S. Sanchez-Fortun Several Phenolic Compounds Toxicol. 56(2):271-279 1996 Bill.Environ.Contam. To	51285	2.4-Dinitrophenol	Palaemonetes sp	• •	Crustaceans	LC50	1	d	Q	M	54 300	a/l	SW	ΙΔR	13273	, ,			
S1285 2,4-Dinitrophenol Artemia salina Brine shrimp Crustaceans LC50 1 d NR U 3,400 µg/L SW LAB 16436 Barahona, M.V., and S. Sanchez-Fortun Several Phenolic Compounds Toxicol. 56(2):271- 278 1996 Crustaceans LC50 1 d NR U 3,400 µg/L SW LAB 16436 Barahona, M.V., and S. Sanchez-Fortun Several Phenolic Compounds Toxicol. 56(2):271- 278 1996 Comparative Sensitivity of Three Age Classes of Artemia salina Larvae to Several Phenolic Compounds Several Phe	31203	2,4-Dinitrophenor	i diaemonetes sp.	piawii	Orustaceans	2000	<u>'</u>	u	-	IVI	34,300	μg/L	OVV	LAD	13273	L.L. Marking	(Cyphillodon variegatus) as Affected by	111. 13(1).01-11	1334
2,4-Dinitrophenol Artemia salina Brine shrimp Crustaceans LC50 1 d NR U 3,400 µg/L SW LAB 16436 Sanchez-Fortun Several Phenolic Compounds 278 1996 2,4-Dinitrophenol Artemia salina Brine shrimp Crustaceans LC50 1 d NR U 3,400 µg/L SW LAB 16436 Sanchez-Fortun Several Phenolic Compounds 278 1996 Comparative Sensitivity of Three Age Classes of Artemia salina Larvae to Several Phenolic Compounds 278 1996 Comparative Sensitivity of Three Age Classes of Artemia salina Larvae to Several Phenolic Compounds 278 1996 Comparative Sensitivity of Three Age Classes of Artemia salina Larvae to Several Phenolic Compounds 278 1996 Comparative Sensitivity of Three Age Classes of Artemia salina Larvae to Several Phenolic Compounds 278 1996 Comparative Sensitivity of Three Age Classes of Artemia salina Larvae to Several Phenolic Compounds 278 1996 Comparative Sensitivity of Three Age Classes of Artemia salina Larvae to Several Phenolic Compounds 278 1996 Comparative Sensitivity of Three Age Classes of Artemia salina Larvae to Several Phenolic Compounds 278 1996 Comparative Sensitivity of Three Age Classes of Artemia salina Larvae to Several Phenolic Compounds 278 1996 Comparative Sensitivity of Three Age Classes of Artemia salina Larvae to Several Phenolic Compounds 278 1996																	Comparative Sensitivity of Three Age		
2,4-Dinitrophenol Artemia salina Brine shrimp Crustaceans LC50 1 d NR U 3,400 µg/L SW LAB 16436 Sanchez-Fortun Bricken-Folse, J.A., F.L. Grass Shrimp,freshwater Grass Shrimp (Palaemonetes spp.) and Sheepshead Minnows Environ.Toxicol.Che		0.4.50.11						١.				_	0147						
2,4-Dinitrophenol Artemia salina Brine shrimp Crustaceans LC50 1 d NR U 3,400 µg/L SW LAB 16436 Sanchez-Fortun Bricken-Folse, J.A., F.L. Grass Shrimp,freshwater Grass shrimp,freshwater Grass shrimp,freshwater Grass shrimp,freshwater Grass shrimp,freshwater Grass Shrimp (Palaemonetes spp.)	51285	2,4-Dinitrophenol	Artemia salina	Brine snrimp	Crustaceans	LC50	1	а	NR	U	3,400	μg/L	SW	LAB	16436	Sancnez-Fortun	Several Pnenolic Compounds	2/8	1996
2,4-Dinitrophenol Artemia salina Brine shrimp Crustaceans LC50 1 d NR U 3,400 µg/L SW LAB 16436 Sanchez-Fortun Bricken-Folse, J.A., F.L. Grass Shrimp,freshwater Grass shrimp,freshwater Grass shrimp,freshwater Grass shrimp,freshwater Grass shrimp,freshwater Grass Shrimp (Palaemonetes spp.)																	Comparative Sensitivity of Three Age	Bull, Environ, Contam	. [
Brecken-Folse, J.A., F.L. Grass shrimp,freshwater Grass shrimp,freshwater Dinitrophenol, Terbufos and Trichlorfon to Grass Shrimp (Palaemonetes spp.) And Sheepshead Minnows Environ.Toxicol.Che																	Classes of Artemia salina Larvae to	Toxicol. 56(2):271-	
Brecken-Folse, J.A., F.L. to Grass Shrimp (Palaemonetes spp.) Grass shrimp,freshwater Grass shrimp,freshwater Brecken-Folse, J.A., F.L. to Grass Shrimp (Palaemonetes spp.) Mayer, L.E. Pedigo, and and Sheepshead Minnows Environ.Toxicol.Che	51285	2,4-Dinitrophenol	Artemia salina	Brine shrimp	Crustaceans	LC50	1	d	NR	U	3,400	μg/L	SW	LAB	16436	Sanchez-Fortun	<u> </u>		1996
Grass shrimp,freshwater Mayer, L.E. Pedigo, and and Sheepshead Minnows Environ.Toxicol.Che																Brecken-Folso IA EI			
2,4-Dinitrophenol Palaemonetes sp. prawn Crustaceans LC50 1 d S M 21,300 µg/L SW LAB 13273 L.L. Marking (Cyprinodon variegatus) as Affected by m. 13(1):67-77 1994				Grass shrimp,freshwater														Environ.Toxicol.Che	
	51285	2,4-Dinitrophenol	Palaemonetes sp.	• •	Crustaceans	LC50	1	d	S	М	21,300	μg/L	SW	LAB	13273				

Integral Consulting Inc. Page 1 of 23

*Chlorobenzene da	ta presented in Appendix A															
						Exposure Duration		Chamiaal		Conc	Media	Toot	Deference			Publication
CAS Number	Chemical Name	Species Scientific Name	Species Common Name	Species Group	Endpoint	Duration Units (Days) (Days			Concentration				Reference Number	Author	Title Source	Year
67 to 11am 56	- Chomical Hame	Species scientilis Hams	Species Comment Hame	- Opening Group	Liiapoiiii		, , , , , ,	<u> </u>	- Correctination	(1.5.)	71			7.00.10.	Dinitrophenol, Terbufos and Trichlorfon	+
														Brecken-Folse, J.A., F.L.	to Grass Shrimp (Palaemonetes spp.)	
			Grass shrimp,freshwater].					0111		400=0	Mayer, L.E. Pedigo, and	and Sheepshead Minnows Environ.Toxicol.Che	
51285	2,4-Dinitrophenol	Palaemonetes sp.	prawn	Crustaceans	LC50	1 d	S	M	26,300	μg/L	SW	LAB	13273	L.L. Marking	(Cyprinodon variegatus) as Affected by m. 13(1):67-77	1994
														Brecken-Folse, J.A., F.L.	Dinitrophenol, Terbufos and Trichlorfon to Grass Shrimp (Palaemonetes spp.)	
			Grass shrimp,freshwater											Mayer, L.E. Pedigo, and		<u> </u>
51285	2,4-Dinitrophenol	Palaemonetes sp.	prawn	Crustaceans	LC50	1.125 d	S	М	20,300	μg/L	SW	LAB	13273	L.L. Marking	(Cyprinodon variegatus) as Affected by m. 13(1):67-77	1994
															Dinitrophenol, Terbufos and Trichlorfon	
			Grass shrimp,freshwater											Brecken-Folse, J.A., F.L. Mayer, L.E. Pedigo, and	to Grass Shrimp (Palaemonetes spp.) and Sheepshead Minnows Environ.Toxicol.Che	,
51285	2,4-Dinitrophenol	Palaemonetes sp.	prawn	Crustaceans	LC50	2 d	s	М	37,700	μg/L	sw	LAB	13273	L.L. Marking	(Cyprinodon variegatus) as Affected by m. 13(1):67-77	1994
		·	·						-					J	Dinitrophenol, Terbufos and Trichlorfon	
														Brecken-Folse, J.A., F.L.	to Grass Shrimp (Palaemonetes spp.)	
51285	2,4-Dinitrophenol	Palaemonetes sp.	Grass shrimp,freshwater prawn	Crustaceans	LC50	2 d	S	M	48,000		SW	LAB	13273	Mayer, L.E. Pedigo, and L.L. Marking	and Sheepshead Minnows (Cyprinodon variegatus) as Affected by m. 13(1):67-77	1994
31203	2,4-Dirittoprierioi	raiaemonetes sp.	piawii	Ciustacearis	LC30	Zu	3	IVI	48,000	μg/L	300	LAB	13273	L.L. Marking	Dinitrophenol, Terbufos and Trichlorfon	1994
														Brecken-Folse, J.A., F.L.	to Grass Shrimp (Palaemonetes spp.)	
			Grass shrimp,freshwater											Mayer, L.E. Pedigo, and	and Sheepshead Minnows Environ.Toxicol.Che	
51285	2,4-Dinitrophenol	Palaemonetes sp.	prawn	Crustaceans	LC50	2 d	S	М	45,700	μg/L	SW	LAB	13273	L.L. Marking	(Cyprinodon variegatus) as Affected by m. 13(1):67-77	1994
														Dracker Folco IA FI	Dinitrophenol, Terbufos and Trichlorfon to Grass Shrimp (Palaemonetes spp.)	
			Grass shrimp,freshwater											Brecken-Folse, J.A., F.L. Mayer, L.E. Pedigo, and	and Sheepshead Minnows Environ.Toxicol.Che	<u>,</u>
51285	2,4-Dinitrophenol	Palaemonetes sp.	prawn	Crustaceans	LC50	2 d	S	М	45,000	μg/L	sw	LAB	13273	L.L. Marking	(Cyprinodon variegatus) as Affected by m. 13(1):67-77	1994
															Dinitrophenol, Terbufos and Trichlorfon	
			0											Brecken-Folse, J.A., F.L.	to Grass Shrimp (Palaemonetes spp.)	
51285	2,4-Dinitrophenol	Palaemonetes sp.	Grass shrimp,freshwater prawn	Crustaceans	LC50	2 d	s	М	45,000	lua/I	SW	LAB	13273	Mayer, L.E. Pedigo, and L.L. Marking	and Sheepshead Minnows (Cyprinodon variegatus) as Affected by m. 13(1):67-77	1994
		, and an	I Production						12,222	rg/ =	1			g	Dinitrophenol, Terbufos and Trichlorfon	+
														Brecken-Folse, J.A., F.L.	to Grass Shrimp (Palaemonetes spp.)	
54005	0.4 Dinitarahanal	Deleganosta	Grass shrimp,freshwater	0	1.050	0.4			44.000		CVA	LAD	40070	Mayer, L.E. Pedigo, and	and Sheepshead Minnows Environ. Toxicol. Che	
51285	2,4-Dinitrophenol	Palaemonetes sp.	prawn	Crustaceans	LC50	2 d	S	M	44,300	μg/L	SW	LAB	13273	L.L. Marking	(Cyprinodon variegatus) as Affected by m. 13(1):67-77 Dinitrophenol, Terbufos and Trichlorfon	1994
														Brecken-Folse, J.A., F.L.	to Grass Shrimp (Palaemonetes spp.)	
			Grass shrimp,freshwater											Mayer, L.E. Pedigo, and	and Sheepshead Minnows Environ.Toxicol.Che	,
51285	2,4-Dinitrophenol	Palaemonetes sp.	prawn	Crustaceans	LC50	2 d	S	М	38,700	μg/L	SW	LAB	13273	L.L. Marking	(Cyprinodon variegatus) as Affected by m. 13(1):67-77	1994
														Dracken Folco I A F I	Dinitrophenol, Terbufos and Trichlorfon	
			Grass shrimp, freshwater											Brecken-Folse, J.A., F.L. Mayer, L.E. Pedigo, and	to Grass Shrimp (Palaemonetes spp.) and Sheepshead Minnows Environ.Toxicol.Che	<u> </u>
51285	2,4-Dinitrophenol	Palaemonetes sp.	prawn	Crustaceans	LC50	2 d	S	М	60,300	μg/L	sw	LAB	13273	L.L. Marking	(Cyprinodon variegatus) as Affected by m. 13(1):67-77	1994
															Dinitrophenol, Terbufos and Trichlorfon	
			0											Brecken-Folse, J.A., F.L.	to Grass Shrimp (Palaemonetes spp.)	
51285	2,4-Dinitrophenol	Palaemonetes sp.	Grass shrimp,freshwater prawn	Crustaceans	LC50	2 d	s	М	36,700	lua/I	SW	LAB	13273	Mayer, L.E. Pedigo, and L.L. Marking	and Sheepshead Minnows Environ.Toxicol.Che (Cyprinodon variegatus) as Affected by m. 13(1):67-77	1994
		, and an	I I					-	33,133	rg/ =				g	Dinitrophenol, Terbufos and Trichlorfon	
														Brecken-Folse, J.A., F.L.	to Grass Shrimp (Palaemonetes spp.)	
E400E	2.4 Dinitrophonol	Delegmentes en	Grass shrimp,freshwater	Crustosooo	LC50	214	S	l _M	62 200	- /1	CVA	LAD	42272	Mayer, L.E. Pedigo, and		
51285	2,4-Dinitrophenol	Palaemonetes sp.	prawn	Crustaceans	LC50	2 d	3	IVI	63,300	μg/L	SW	LAB	13273	L.L. Marking	(Cyprinodon variegatus) as Affected by m. 13(1):67-77 Dinitrophenol, Terbufos and Trichlorfon	1994
														Brecken-Folse, J.A., F.L.	to Grass Shrimp (Palaemonetes spp.)	
			Grass shrimp,freshwater											Mayer, L.E. Pedigo, and	and Sheepshead Minnows Environ.Toxicol.Che	,
51285	2,4-Dinitrophenol	Palaemonetes sp.	prawn	Crustaceans	LC50	2 d	S	М	20,000	μg/L	SW	LAB	13273	L.L. Marking	(Cyprinodon variegatus) as Affected by m. 13(1):67-77	1994
															Composative Consitiuty of These Ass. Dull Facility Co.	_
														Barahona, M.V., and S.	Comparative Sensitivity of Three Age Classes of Artemia salina Larvae to Toxicol. 56(2):271-	
51285	2,4-Dinitrophenol	Artemia salina	Brine shrimp	Crustaceans	LC50	2 d	NR	U	200	μg/L	SW	LAB	16436	Sanchez-Fortun	Several Phenolic Compounds 278	1996
															Dinitrophenol, Terbufos and Trichlorfon	
														Brecken-Folse, J.A., F.L.		
51285	2,4-Dinitrophenol	Palaemonetes sp.	Grass shrimp,freshwater prawn	Crustaceans	LC50	2 d	s	M	30,000	lua/I	SW	LAB	13273	Mayer, L.E. Pedigo, and L.L. Marking	and Sheepshead Minnows (Cyprinodon variegatus) as Affected by m. 13(1):67-77	1994
01200	2,4-0111110001101	i diaemonetes sp.	piawii	Orusiacearis	L030	Z u	3	IVI	30,000	μy/L	UVV	LAD	13213	L.L. IVIAINIIY	Dinitrophenol, Terbufos and Trichlorfon	1334
														Brecken-Folse, J.A., F.L.	to Grass Shrimp (Palaemonetes spp.)	
			Grass shrimp,freshwater				_							Mayer, L.E. Pedigo, and	and Sheepshead Minnows Environ. Toxicol. Che	
51285	2,4-Dinitrophenol	Palaemonetes sp.	prawn	Crustaceans	LC50	2 d	S	M	34,700	μg/L	SW	LAB	13273	L.L. Marking	(Cyprinodon variegatus) as Affected by m. 13(1):67-77	1994

Integral Consulting Inc. Page 2 of 23

*Chlorobenzene da	ta presented in Appendix A					_												
						Exposure Duration	Duration Units E	xposure	Chemical		Conc	Media	Test	Reference				Publication
CAS Number	Chemical Name	Species Scientific Name	Species Common Name	Species Group	Endpoint	, <u> </u>	(Days)	Туре		Concentration			Location	Number	Author	Title	Source	Year
																Dinitrophenol, Terbufos and Trichlorfon		
															Brecken-Folse, J.A., F.L.	to Grass Shrimp (Palaemonetes spp.)		'
51285	2,4-Dinitrophenol	Palaemonetes sp.	Grass shrimp,freshwater prawn	Crustaceans	LC50		3 d	S	М	41,300	ua/I	SW	LAB	13273	Mayer, L.E. Pedigo, and L.L. Marking	and Sheepshead Minnows (Cyprinodon variegatus) as Affected by	Environ.Toxicol.Che	1994
01200	Z,4 Dimitopricio	r didemonetes sp.	prawn	Orasiaccaris	2000		Ju		IVI	41,000	μg/L	011	LAD	10210	L.L. Warking	Dinitrophenol, Terbufos and Trichlorfon	111. 10(1).07 77	1334
															Brecken-Folse, J.A., F.L.	to Grass Shrimp (Palaemonetes spp.)		
	0.4.70.11		Grass shrimp,freshwater					•				0147		400=0	Mayer, L.E. Pedigo, and	and Sheepshead Minnows	Environ.Toxicol.Che	
51285	2,4-Dinitrophenol	Palaemonetes sp.	prawn	Crustaceans	LC50		3 d	S	М	36,700	μg/L	SW	LAB	13273	L.L. Marking	(Cyprinodon variegatus) as Affected by	m. 13(1):67-77	1994
															Brecken-Folse, J.A., F.L.	Dinitrophenol, Terbufos and Trichlorfon to Grass Shrimp (Palaemonetes spp.)		
			Grass shrimp,freshwater												Mayer, L.E. Pedigo, and		Environ.Toxicol.Che	
51285	2,4-Dinitrophenol	Palaemonetes sp.	prawn	Crustaceans	LC50		3 d	S	М	38,700	μg/L	SW	LAB	13273	L.L. Marking	(Cyprinodon variegatus) as Affected by	` '	1994
															Brecken-Folse, J.A., F.L.	Dinitrophenol, Terbufos and Trichlorfon to Grass Shrimp (Palaemonetes spp.)		
			Grass shrimp, freshwater												Mayer, L.E. Pedigo, and		Environ.Toxicol.Che	
51285	2,4-Dinitrophenol	Palaemonetes sp.	prawn	Crustaceans	LC50		3 d	S	М	35,300	μg/L	SW	LAB	13273	L.L. Marking	(Cyprinodon variegatus) as Affected by		1994
																Dinitrophenol, Terbufos and Trichlorfon		
			Grass shrimp,freshwater												Brecken-Folse, J.A., F.L. Mayer, L.E. Pedigo, and	to Grass Shrimp (Palaemonetes spp.) and Sheepshead Minnows	Environ.Toxicol.Che	
51285	2,4-Dinitrophenol	Palaemonetes sp.	prawn	Crustaceans	LC50		3 d	S	М	57,700	μg/L	SW	LAB	13273	L.L. Marking	(Cyprinodon variegatus) as Affected by		1994
	·														-	Dinitrophenol, Terbufos and Trichlorfon		
															Brecken-Folse, J.A., F.L.	to Grass Shrimp (Palaemonetes spp.)	F . T . 101	
51285	2,4-Dinitrophenol	Palaemonetes sp.	Grass shrimp,freshwater prawn	Crustaceans	LC50		3 d	S	М	24,000	ua/l	SW	LAB	13273	Mayer, L.E. Pedigo, and L.L. Marking	and Sheepshead Minnows (Cyprinodon variegatus) as Affected by	Environ.Toxicol.Che m 13(1):67-77	1994
0.200	2,12	i diadinonotee epi	piami	0.4044004110	2000		1			2.,000	µg/L			102.0		Dinitrophenol, Terbufos and Trichlorfon	10(1).07 11	1001
															Brecken-Folse, J.A., F.L.	to Grass Shrimp (Palaemonetes spp.)		
E400E	2.4 Dinitrophonol	Deleamenates an	Grass shrimp,freshwater	Crustonono	LC50		214	S	М	24.000	/1	CW	LAD	42072	Mayer, L.E. Pedigo, and	and Sheepshead Minnows	Environ.Toxicol.Che	1004
51285	2,4-Dinitrophenol	Palaemonetes sp.	prawn	Crustaceans	LC50		3 d	5	IVI	24,000	μg/L	SW	LAB	13273	L.L. Marking	(Cyprinodon variegatus) as Affected by Dinitrophenol, Terbufos and Trichlorfon	m. 13(1):67-77	1994
															Brecken-Folse, J.A., F.L.	to Grass Shrimp (Palaemonetes spp.)		
			Grass shrimp,freshwater												Mayer, L.E. Pedigo, and	and Sheepshead Minnows	Environ.Toxicol.Che	
51285	2,4-Dinitrophenol	Palaemonetes sp.	prawn	Crustaceans	LC50		3 d	S	М	25,000	μg/L	SW	LAB	13273	L.L. Marking	(Cyprinodon variegatus) as Affected by	m. 13(1):67-77	1994
															Brecken-Folse, J.A., F.L.	Dinitrophenol, Terbufos and Trichlorfon to Grass Shrimp (Palaemonetes spp.)		
			Grass shrimp,freshwater												Mayer, L.E. Pedigo, and		Environ.Toxicol.Che	
51285	2,4-Dinitrophenol	Palaemonetes sp.	prawn	Crustaceans	LC50		3 d	S	М	31,700	μg/L	SW	LAB	13273	L.L. Marking	(Cyprinodon variegatus) as Affected by	m. 13(1):67-77	1994
															Brecken-Folse, J.A., F.L.	Dinitrophenol, Terbufos and Trichlorfon to Grass Shrimp (Palaemonetes spp.)		
			Grass shrimp, freshwater												Mayer, L.E. Pedigo, and	and Sheepshead Minnows	Environ.Toxicol.Che	
51285	2,4-Dinitrophenol	Palaemonetes sp.	prawn	Crustaceans	LC50		3 d	S	М	33,700	μg/L	SW	LAB	13273	L.L. Marking	(Cyprinodon variegatus) as Affected by	m. 13(1):67-77	1994
																Dinitrophenol, Terbufos and Trichlorfon		
			Grass shrimp,freshwater												Brecken-Folse, J.A., F.L. Mayer, L.E. Pedigo, and	to Grass Shrimp (Palaemonetes spp.) and Sheepshead Minnows	Environ.Toxicol.Che	
51285	2,4-Dinitrophenol	Palaemonetes sp.	prawn	Crustaceans	LC50		3 d	S	М	33,300	μg/L	SW	LAB	13273	L.L. Marking	(Cyprinodon variegatus) as Affected by		1994
																Dinitrophenol, Terbufos and Trichlorfon		
			Grass shrimp,freshwater												Brecken-Folse, J.A., F.L. Mayer, L.E. Pedigo, and	to Grass Shrimp (Palaemonetes spp.) and Sheepshead Minnows	Environ.Toxicol.Che	
51285	2,4-Dinitrophenol	Palaemonetes sp.	prawn	Crustaceans	LC50		3 d	S	М	28,300	ua/L	SW	LAB	13273	L.L. Marking	(Cyprinodon variegatus) as Affected by		1994
																Dinitrophenol, Terbufos and Trichlorfon	` ,	
															Brecken-Folse, J.A., F.L.	to Grass Shrimp (Palaemonetes spp.)		
51285	2,4-Dinitrophenol	Palaemonetes sp.	Grass shrimp,freshwater prawn	Crustaceans	LC50		3 d	S	М	28,000	ua/I	SW	LAB	13273	Mayer, L.E. Pedigo, and L.L. Marking	and Sheepshead Minnows (Cyprinodon variegatus) as Affected by	Environ.Toxicol.Che	1994
01200	z, i zimaropriorior	r didomonotod op.	piami	- Cruotaccario	2000		o u		141	20,000	μg/L	011	2,70	10210	L.L. Warking	Dinitrophenol, Terbufos and Trichlorfon	, ,	1001
															Brecken-Folse, J.A., F.L.	to Grass Shrimp (Palaemonetes spp.)		
54005	0.4 Dinitronk and	Deleganosta	Grass shrimp,freshwater	0	1.050			0		07 700		CVA	LAD	40070	Mayer, L.E. Pedigo, and		Environ.Toxicol.Che	4004
51285	2,4-Dinitrophenol	Palaemonetes sp.	prawn	Crustaceans	LC50	-	30	S	М	27,700	μg/L	SW	LAB	13273	L.L. Marking	(Cyprinodon variegatus) as Affected by Dinitrophenol, Terbufos and Trichlorfon	, ,	1994
					1										Brecken-Folse, J.A., F.L.	to Grass Shrimp (Palaemonetes spp.)		
			Grass shrimp,freshwater		1.										Mayer, L.E. Pedigo, and	and Sheepshead Minnows	Environ.Toxicol.Che	
51285	2,4-Dinitrophenol	Palaemonetes sp.	prawn	Crustaceans	LC50	1	3 d	S	М	27,300	μg/L	SW	LAB	13273	L.L. Marking	(Cyprinodon variegatus) as Affected by	m. 13(1):67-77	1994
					1											In-Depth Studies on Health and	U.S.EPA Contract	
															U.S.Environmental	Environmental Impacts of Selected	No.68-01-4646,	
51285	2,4-Dinitrophenol	Americamysis bahia	Opossum shrimp	Crustaceans	LC50		4 d	NR	U	48,500	μg/L	SW	LAB	9607	Protection Agency		Duluth, MN :9 p.	1978

Integral Consulting Inc. Page 3 of 23

*Chlorobenzene dat	a presented in Appendix A															
						Exposure Duration Duration Units		Chemical	Conc Units Me	odio T	oot E	Reference				Publication
CAS Number	Chemical Name	Species Scientific Name	Species Common Name	Species Group	Endpoint	(Days) (Days)			Concentration (µg/L) Ty	ype Lo		Number	Author	Title	Source	Year
51285	2.4-Dinitrophenol	Palaemonetes sp.	Grass shrimp,freshwater	Crustaceans	LC50	4 d	S	M			.AB	13273	Brecken-Folse, J.A., F.L. Mayer, L.E. Pedigo, and L.L. Marking	Dinitrophenol, Terbufos and Trichlorfon to Grass Shrimp (Palaemonetes spp.) and Sheepshead Minnows (Cyprinodon variegatus) as Affected by	Environ.Toxicol.Che	1994
51285	2,4-Dinitrophenol	Palaemonetes sp.	Grass shrimp,freshwater	Crustaceans	LC50	4 d	S	М			.AB	13273	Brecken-Folse, J.A., F.L. Mayer, L.E. Pedigo, and L.L. Marking	Dinitrophenol, Terbufos and Trichlorfon to Grass Shrimp (Palaemonetes spp.) and Sheepshead Minnows (Cyprinodon variegatus) as Affected by	Environ.Toxicol.Che	1994
51285	2,4-Dinitrophenol	Palaemonetes sp.	Grass shrimp,freshwater prawn	Crustaceans	LC50	4 d	S	М	21,700 μg/L S	SW I	.AB	13273	Brecken-Folse, J.A., F.L. Mayer, L.E. Pedigo, and L.L. Marking	Dinitrophenol, Terbufos and Trichlorfon to Grass Shrimp (Palaemonetes spp.) and Sheepshead Minnows (Cyprinodon variegatus) as Affected by	Environ.Toxicol.Che m. 13(1):67-77	1994
51285	2,4-Dinitrophenol	Palaemonetes sp.	Grass shrimp,freshwater prawn	Crustaceans	LC50	4 d	s	М	23,300 μg/L S	SW L	.AB	13273	Brecken-Folse, J.A., F.L. Mayer, L.E. Pedigo, and L.L. Marking	Dinitrophenol, Terbufos and Trichlorfon to Grass Shrimp (Palaemonetes spp.) and Sheepshead Minnows (Cyprinodon variegatus) as Affected by	Environ.Toxicol.Che m. 13(1):67-77	1994
51285	2,4-Dinitrophenol	Palaemonetes sp.	Grass shrimp,freshwater prawn	Crustaceans	LC50	4 d	S	М	26,300 μg/L S	SW I	.AB	13273	Brecken-Folse, J.A., F.L. Mayer, L.E. Pedigo, and L.L. Marking	Dinitrophenol, Terbufos and Trichlorfon to Grass Shrimp (Palaemonetes spp.) and Sheepshead Minnows (Cyprinodon variegatus) as Affected by	Environ.Toxicol.Che m. 13(1):67-77	1994
51285	2,4-Dinitrophenol	Palaemonetes sp.	Grass shrimp,freshwater prawn	Crustaceans	LC50	4 d	S	М	31,700 µg/L S	SW L	.AB	13273	Brecken-Folse, J.A., F.L. Mayer, L.E. Pedigo, and L.L. Marking	Dinitrophenol, Terbufos and Trichlorfon to Grass Shrimp (Palaemonetes spp.) and Sheepshead Minnows (Cyprinodon variegatus) as Affected by	Environ.Toxicol.Che m. 13(1):67-77	1994
51285	2,4-Dinitrophenol	Palaemonetes sp.	Grass shrimp,freshwater prawn	Crustaceans	LC50	4 d	S	М	31,300 µg/L S	SW L	.AB	13273	Brecken-Folse, J.A., F.L. Mayer, L.E. Pedigo, and L.L. Marking	Dinitrophenol, Terbufos and Trichlorfon to Grass Shrimp (Palaemonetes spp.) and Sheepshead Minnows (Cyprinodon variegatus) as Affected by	Environ.Toxicol.Che m. 13(1):67-77	1994
51285	2,4-Dinitrophenol	Palaemonetes sp.	Grass shrimp,freshwater prawn	Crustaceans	LC50	4 d	s	М	26,700 μg/L S	SW L	.AB	13273	Brecken-Folse, J.A., F.L. Mayer, L.E. Pedigo, and L.L. Marking	Dinitrophenol, Terbufos and Trichlorfon to Grass Shrimp (Palaemonetes spp.) and Sheepshead Minnows (Cyprinodon variegatus) as Affected by	Environ.Toxicol.Che m. 13(1):67-77	1994
51285	2,4-Dinitrophenol	Palaemonetes sp.	Grass shrimp,freshwater prawn	Crustaceans	LC50	4 d	s	М	26,600 μg/L S	SW L	.AB	13273	Brecken-Folse, J.A., F.L. Mayer, L.E. Pedigo, and L.L. Marking	Dinitrophenol, Terbufos and Trichlorfon to Grass Shrimp (Palaemonetes spp.) and Sheepshead Minnows (Cyprinodon variegatus) as Affected by	Environ.Toxicol.Che m. 13(1):67-77	1994
51285	2,4-Dinitrophenol	Artemia salina	Brine shrimp	Crustaceans	LC50	7 d	NR	U	100 μg/L S	SW I	.AB	16436	Barahona, M.V., and S. Sanchez-Fortun	Comparative Sensitivity of Three Age Classes of Artemia salina Larvae to Several Phenolic Compounds	Bull.Environ.Contam. Toxicol. 56(2):271- 278	1996
62533	Benzenamine	Crangon septemspinosa	Bay shrimp, Sand shrimp	Crustaceans	LC50	4 d	R	М	29,400 μg/L S	SW L	.AB	5810	McLeese, D.W., V. Zitko, and M.R. Peterson	Structure-Lethality Relationships for Phenols, Anilines and Other Aromatic Compounds in Shrimp and Clams	Chemosphere 8(2):53- 57 (OECDG Data File)	1979
67663	Trichloromethane	Brachionus plicatilis	Rotifer	Invertebrates	LC50	0.041666667 d	s	NR	2,400 μg/L S	SW I	.AB	16539	Snell, T.W., B.D. Moffat, C. Janssen, and G. Persoone	Acute Toxicity Tests Using Rotifers. III. Effects of Temperature, Strain, and Exposure Time on the Sensitivity of Brachionus plicatilis	Environ.Toxicol.Wate r Qual. 6:63-75	1991
67663	Trichloromethane	Penaeus duorarum	Northern pink shrimp	Crustaceans	LC50	1 d	s	U	134,000 μg/L S	SW I	.AB	2644	Bentley, R.E., T. Heitmuller, B.H. Sleight III, and P.R. Parrish	Acute Toxicity of Chloroform to Bluegill (Lepomis macrochirus), Rainbow Trout (Salmo gairdneri), and Pink Shrimp (Penaeus duorarum)		1979
67663	Trichloromethane	Penaeus duorarum	Northern pink shrimp	Crustaceans	LC50	2 d	S	U	81,500 μg/L S	SW L	.AB	2644	Bentley, R.E., T. Heitmuller, B.H. Sleight III, and P.R. Parrish	Acute Toxicity of Chloroform to Bluegill (Lepomis macrochirus), Rainbow Trout (Salmo gairdneri), and Pink Shrimp (Penaeus duorarum)	Branch, WA-6-99- 1414-B, Washington, D.C. :13 p.	1979
67663	Trichloromethane	Penaeus duorarum	Northern pink shrimp	Crustaceans	LC50	4 d	s	U	81,500 μg/L S	SW L	.AB	2644	Bentley, R.E., T. Heitmuller, B.H. Sleight III, and P.R. Parrish	Acute Toxicity of Chloroform to Bluegill (Lepomis macrochirus), Rainbow Trout (Salmo gairdneri), and Pink Shrimp (Penaeus duorarum)		1979
71432	Benzene	Palaemonetes pugio	Daggerblade grass shrimp	Crustaceans	LC50	1 d	s	U	43,500 μg/L S	SW L	.AB	420	Tatem, H.E., B.A. Cox, and J.W. Anderson	The Toxicity of Oils and Petroleum Hydrocarbons to Estuarine Crustaceans	Estuar.Coast.Mar.Sci. 6(4):365-373	1978

Integral Consulting Inc. Page 4 of 23

*Chlorobenzene da	ta presented in Appendix A				ı		T	1	1			1	1		1	•	
							uration Units Exposure	e Chemical		Conc	Media	Test	Reference				Publication
CAS Number	Chemical Name	Species Scientific Name	Species Common Name	Species Group	Endpoint		Days) Type		Concentration			Location	Number	Author	Title	Source	Year
74.422	Ponzono	Artemia salina	Brine shrimp	Cruatagaga	LC50*	114	s	U	66 000		SW	LAB	2408	Price, K.S., G.T. Waggy, and R.A. Conway	Brine Shrimp Bioassay and Seawater BOD of Petrochemicals	J.Water Pollut.Control Fed. 46(1):63-77	1974
71432	Benzene	Arternia Saima	Dille Silllip	Crustaceans	LC30	ı id	3	0	66,000	μg/L	SVV	LAD	2400	and K.A. Conway	The Effects of Benzene, Toluene and	Ph.D.Thesis, Lehigh University,	1974
71432	Benzene	Palaemonetes pugio	Daggerblade grass shrimp	Crustaceans	LC50	1 d	s	U	74,400	μg/L	SW	LAB	7800	Potera, G.T.	Ethylbenzene on Several Important Members of the Estuarine Ecosystem	Bethlehem, PA :108 p.	1975
71432	Benzene	Nitocra spinipes	Harpacticoid copepod	Crustaceans	LC50	1 d	s	U	82,000	μg/L	sw	LAB	7800	Potera, G.T.	The Effects of Benzene, Toluene and Ethylbenzene on Several Important Members of the Estuarine Ecosystem	Ph.D.Thesis, Lehigh University, Bethlehem, PA:108 p.	1975
71432	Benzene	Palaemonetes pugio	Daggerblade grass shrimp	Crustaceans	LC50	11d	S	U	90,800	ug/l	SW	LAB	7800	Potera, G.T.	The Effects of Benzene, Toluene and Ethylbenzene on Several Important Members of the Estuarine Ecosystem	Ph.D.Thesis, Lehigh University, Bethlehem, PA :108	1975
7.1.02	20125110	, aldomenese pages		Oraciassa.is	2000				30,000	μg/ L	0	2.13	7.000	7 00.0, 0111	The Effects of Benzene, Toluene and	Ph.D.Thesis, Lehigh University,	10.0
71432	Benzene	Nitocra spinipes	Harpacticoid copepod	Crustaceans	LC50	1 d	S	U	111,500	μg/L	SW	LAB	7800	Potera, G.T.	Ethylbenzene on Several Important Members of the Estuarine Ecosystem Hydrocarbons to the Estuarine Fish	Bethlehem, PA :108 p.	1975
71432	Benzene	Katelysia opima	Marine bivalve	Molluscs	LC50	1 d	s	U	225,000	uα/L	SW	LAB	9017	Dange, A.D., and V.B. Masurekar	Therapon jarbua (Forsskal) and the Estuarine Clam Katelysia opima (Gmelin)	Proc.Symp.Coastal Aguacult. 3:828-832	1984
		, and your special								F9' =					The Effects of Benzene, Toluene and Ethylbenzene on Several Important	Ph.D.Thesis, Lehigh University, Bethlehem, PA:108	
71432	Benzene	Palaemonetes pugio	Daggerblade grass shrimp	Crustaceans	LC50	1 d	S	U	38,000	μg/L	SW	LAB	7800	Potera, G.T.	Members of the Estuarine Ecosystem The Toxicity and Physiological Effects of Oil and Petroleum Hydrocarbons on	p. Ph.D.Thesis, Texas	1975
71432	Benzene	Palaemonetes pugio	Daggerblade grass shrimp	Crustaceans	LC50	1 d	S	U	43,500	μg/L	SW	LAB	19953	Tatem, H.E.	Estuarine Grass Shrimp Palaemonete: pugio (Holthuis)	College Station, TX :133 p.	1975
71432	Benzene	Palaemonetes pugio	Daggerblade grass shrimp	Crustaceans	LC50	1 d	s	U	40,800	μg/L	SW	LAB	7800	Potera, G.T.	The Effects of Benzene, Toluene and Ethylbenzene on Several Important Members of the Estuarine Ecosystem	Ph.D.Thesis, Lehigh University, Bethlehem, PA:108 p.	1975
			33 3 1						,	1-5				Ferrando, M.D., and E.	Acute Toxicity of Toluene, Hexane, Xylene, and Benzene to the Rotifers Brachionus calyciflorus and	Bull.Environ.Contam. Toxicol. 49(2):266-	
71432	Benzene	Brachionus plicatilis	Rotifer	Invertebrates	LC50	1 d	S	U	1,000	μg/L	SW	LAB	6002	Andreu-Moliner	Brachionus plicatilis	271 Ph.D.Thesis, Lehigh	1992
71432	Benzene	Palaemonetes pugio	Daggerblade grass shrimp	Crustaceans	LC50	1 d	S	U	33,500	μg/L	sw	LAB	7800	Potera, G.T.	The Effects of Benzene, Toluene and Ethylbenzene on Several Important Members of the Estuarine Ecosystem	University, Bethlehem, PA:108 p.	1975
71432	Benzene	Palaemonetes pugio	Daggerblade grass shrimp	Crustaceans	LC50	11d	s	U	40,200	ua/l	SW	LAB	7800	Potera, G.T.	The Effects of Benzene, Toluene and Ethylbenzene on Several Important Members of the Estuarine Ecosystem	Ph.D.Thesis, Lehigh University, Bethlehem, PA:108	1975
71102	BONZONO	T diadifferiological pages	Daggorbiade grado drillinp	Oraciacoano	2000						- CVI	27.05	1000		The Acute Toxicity of Six Monocyclic Aromatic Crude Oil Components to Striped Bass (Morone saxatilis) and	Calif.Fish Game	1010
71432	Benzene	Crangon franciscorum	Bay shrimp	Crustaceans	LC50	1 d	S	M	22,000	μg/L	SW	LAB	558	Korn	Bay Shrimp (Crago franciscorum) The Effect of Alaskan Crude Oil and	63(4):204-209 Washington, Seattle,	1977
71432	Benzene	Crassostrea gigas	Pacific oyster	Molluscs	LC50*	2 d	S	U		μg/L	SW	LAB	8621	Legore, R.S.	Selected Hydrocarbon Compounds on Embryonic Development of the Pacfic Oyster, Crassostrea gigas		1975
74 400					1070					_	0		00.17		Hydrocarbons to the Estuarine Fish Therapon jarbua (Forsskal) and the Estuarine Clam Katelysia opima	Proc.Symp.Coastal	400.
71432	Benzene	Katelysia opima	Marine bivalve	Molluscs	LC50	2 d	S	U	205,000	μg/L	SW	LAB	9017	Masurekar Caldwell, R.S., E.M.	(Gmelin) of Cook Inlet Crude Oil and Its Major Aromatic Components on Larval	Aquacult. 3:828-832 Fate and Effects of Petroleum	1984
71432	Benzene	Cancer magister	Dungeness or edible crab	Crustaceans	LC50	2 d	S	М	347,000	μg/L	SW	LAB	5035	Caldarone, and M.H. Mallon	Stages of the Dungeness Crab, Cancer magister Dana	Hydrocarbons in Marine Ecosystems	1977

Integral Consulting Inc. Page 5 of 23

Company Comp	*Chlorobenzene da	ita presented in Appendix A		_															
Second Column C							Exposure	Duration	Evposuro	Chomical		Conc	Modia	Tost	Poforonce				Publication
	CAS Number	Chemical Name	Species Scientific Name	Species Common Name	Species Group	Endpoint					Concentration						Title	Source	
Property																Price K.S. C.T. Waggy	Pring Shrima Bioggagy and Segurator		
Second Pagementers page Department D	71432	Benzene	Artemia salina	Brine shrimp	Crustaceans	LC50*	2	d	S	U	21,000	μg/L	SW	LAB	2408	and R.A. Conway			1974
Property																			
Second Processing Process Pr																Tatem H.F. and J.W.	,	Am Zool 13(4):1307-	
Abstraction Pattern center page Degettable gene owner Close Degettable gene owner	71432	Benzene	Palaemonetes pugio	Daggerblade grass shrimp	Crustaceans	LC50*	2	d d	NR	U	33,000	μg/L	SW	LAB	9002	, ,			1973
Parameter page Degree Parameter page Degree body gas antimo Country Countr																		,	
## Palanomonico jugo Degestata gino primo Consciente Consciente																			
Peaceton	71432	Benzene	Palaemonetes pugio	Daggerblade grass shrimp	Crustaceans	LC50	2	d d	S	U	35,000	μg/L	SW	LAB	19953	Tatem, H.E.			1975
Parameter Para																	The Taviaity of Oile and Detrolouse		
## Parameter Par																Tatem, H.E., B.A. Cox,		Estuar.Coast.Mar.Sci.	i.
Servicine Statisysis optime Marine bivable Solitace L200 2 e S U 195,000 log t S L8 917 Page	71432	Benzene	Palaemonetes pugio	Daggerblade grass shrimp	Crustaceans	LC50	2	d	S	U	35,000	μg/L	SW	LAB	420	and J.W. Anderson	Crustaceans	6(4):365-373	1978
Description Marine Division Marine Divisio																			
Processes Proc																Dange, A.D., and V.B.	. , , ,	Proc.Symp.Coastal	
April Part	71432	Benzene	Katelysia opima	Marine bivalve	Molluscs	LC50	3	d	S	U	195,000	μg/L	SW	LAB	9017	Masurekar	' '	Aquacult. 3:828-832	1984
April Berusem Katelysia opims Marine biowine Multures LCSO 4 d 5 U 190,000 opt SW LAB 9017 Danger, Ap., and V.B. Estimate Clark Keeplean again April Proc. Sympt. Counted Switch Sw																	1 '		
Service Paternomées pujo Daggerfiside grass shring Custaceans LC50 4 d S M 100,000 light SW LAB 5035 SW LAB SW SW SW LAB SW SW SW LAB SW SW SW LAB SW SW SW SW LAB SW SW SW SW SW SW SW S																Dange, A.D., and V.B.			
Securing Palaemonetes puglic Degenhate grass shrimp Chatacoans LCS0 4 d 8 N 108,500 ppl. SW LAB 10850 Tarten, H.E. 200 ppl. SW LAB 200 p	71432	Benzene	Katelysia opima	Marine bivalve	Molluscs	LC50	4	d	S	U	190,000	μg/L	SW	LAB	9017	Masurekar	,	<u> </u>	1984
September Camper imagister Cumper magister																Caldwell R.S. F.M.			
Servicine Palemonetes pugio Degendrate grass shrimp Crustaceans LC50 4 d S U 27,000 ugl. SW LAB 19653 Tatem, H.E. Servicine Grass Shrimp Pelaemonetes College Station, TX 1975 The Accus Touloisy of SW Monocyclic Administration of College Station, TX 1975 The Accus Touloisy of SW Monocyclic Administration of College Station, TX 1975 The Accus Touloisy of SW Monocyclic Administration of College Station, TX 1975 The Accus Touloisy of SW Monocyclic Administration of College Station, TX 1975 The Accus Touloisy of SW Monocyclic Administration of College Station, TX 1975 The Accus Touloisy of SW Monocyclic Administration of College Station, TX 1975 The Accus Touloisy of SW Monocyclic Administration of College Station, TX 1975 The Accus Touloisy of SW Monocyclic Administration of College Station, TX 1975 The Accus Touloisy of SW Monocyclic Administration of College Station, TX 1975 The Accus Touloisy of SW Monocyclic Administration of College Station, TX 1975 The Accus Touloisy of SW Monocyclic Administration of College Station, TX 1975 The Accus Touloisy of SW Monocyclic Administration of College Station, TX 1975 The Accus Touloisy of SW Monocyclic Administration of College Station, TX 1975 The Accus Touloisy of SW Monocyclic Administration of College Station, TX 1975 The Accus Touloisy of SW Monocyclic Administration of College Station, TX 1975 The Accus Touloisy of SW Monocyclic Administration of College Station, TX 1975 The Accus Touloisy of SW Monocyclic Administration of College Station, TX 1975 The Accus Touloisy of SW Monocyclic Administration of College Station, TX 1975 The Accus Touloisy of SW Monocyclic Administration of College Station, TX 1975 The Accus Touloisy of SW Monocyclic Administration of College Station, TX 1975 The Accus Touloisy of SW Monocyclic Administration of College Station, TX 1975 The Accus Touloisy of SW Monocyclic Administration of College Station, TX 1975 The Accus																Caldarone, and M.H.	Stages of the Dungeness Crab,	Hydrocarbons in	
Servation Polaemonetes pugio Daggerblade grass shrimp Crustaceans LC50 4 d S U Z7,000 Lg LB 1985 Tatem, H.E. Estatisfice finate (Finate-Bright Shrimp Polaemonetes LC50 LB LB LB LB LB LB LB L	71432	Benzene	Cancer magister	Dungeness or edible crab	Crustaceans	LC50	4	d	S	M	108,000	μg/L	SW	LAB	5035	Mallon	· · ·	· · · · · · · · · · · · · · · · · · ·	1977
Separate Palaemonetes puglo Daggerblade grass shrimp Coustaceans LCSO 4 d S U 27,000 Log LAB 1955 Tatem, H.E. Dagger blowlay 1375 Tatem, H.E. Dagger blowlay 1376 LAB 1955 Tatem, H.E. Dagger blowlay 1376 LAB 19																			
Benzene Crangon franciscorum Bay shrimp Crustaceans LC50 4 d S M 20,000 g/L SW LAB 558 Kom Stripped Bass (Morne saxellis) and									_								Estuarine Grass Shrimp Palaemonetes	College Station, TX	
Accordance Consideration September Constitution September Constitution September Constitution September Se	71432	Benzene	Palaemonetes pugio	Daggerblade grass shrimp	Crustaceans	LC50	4	d	S	U	27,000	μg/L	SW	LAB	19953	Tatem, H.E.		:133 p.	1975
Separate Cangon franciscorum Bay shrimp Crustaceans LC50 4 d S M 20,000 µg L SW LAB 558 Kom Bay Shrimp (Crago franciscorum) 63(4):204-209 1977																			
Benzene Palaemonetes pugio Daggerilade grass shrimp Crustaceans LC50 4 d NR U 27,000 µgL SW LAB 45270 and LE Tatem H.E., B.A. Cox, R.B. Effects of Petroleum on Survival Laughlin Jr., S.S. Rossi, Am. Inst. Biol. Sci. :516-59 and H.E. Tatem H.E., B.A. Cox, P. Effects of Petroleum on Survival Laughlin Jr., S.S. Rossi, Am. Inst. Biol. Sci. :516-59 and H.E. Tatem H.E., B.A. Cox, P. Effects of Petroleum on Survival Laughlin Jr., S.S. Rossi, Am. Inst. Biol. Sci. :516-59 and H.E. Tatem H.E., B.A. Cox, P. Effects of Petroleum on Survival Laughlin Jr., S.S. Rossi, Am. Inst. Biol. Sci. :516-59 and J.W. Anderson on Communication and Growth of Marine Am. Inst. Biol. Sci. :516-59 and J.W. Anderson on Communication and	74.400	5		D		1.050					00.000		0)4/		550				4077
Anderson, B.A. Cox, R.B. Effects of Petroleum on Survival, Laughlin, Jr. S. Ross, Respiration and Growth of Marine Animals Respiration and Growth Animals Respiration and Growth of Marine Animals Respiration and Growth of Marine Animals Respiration and Growth Animals Respiration and Growth Animals Respiration and Growth Animals Residual Animals Respiration and Growth Anim	71432	Benzene	Crangon tranciscorum	Bay snrimp	Crustaceans	LC50	4	a	8	IVI	20,000	μg/L	SW	LAB	558		Bay Snrimp (Crago franciscorum)	63(4):204-209	1977
Benzene Palaemonetes puglio Daggerblade grass shrimp Crustaceans LC50 4 d NR U 27,000 µg/L SW LAB 45270 and H.E. Tatem Animals 539 1976																			
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Benzene Palaemonetes puglo Daggerblade grass shrimp Crustaceans LC50 4 d S U 27,000 µg/L SW LAB 420 and JW. Anderson Crustaceans (4):365-373 1978 Author Carbon Contract Co	7 1432	Belizerie	Palaemonetes pugio	Daggerblade grass silling	Crustaceans	LCSU	4	u	INIX	U	27,000	μg/L	SVV	LAD	45270	and n.E. Talem	Allinais	559	1976
Benzene Palaemonetes pugio Daggerblade grass shrimp Crustaceans LC50 4 d S U 27,000 µg/L SW LAB 420 and J.W. Anderson Crustaceans 6(4):365-373 1978 Crustaceans C50 4 d S Crustaceans C50 Crustaceans																			
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Methylene chloride Palaemonetes pugio Daggerblade grass shrimp Crustaceans LC50 2 d S M 108,500 µg/L SW LAB 3163 Burton, D.T., and D.J. Crustaceans Daggerblade grass shrimp Crustaceans LC50 2 d S M 108,500 µg/L SW LAB 3163 Burton, D.T., and D.J. Crustaceans Daggerblade grass shrimp and Killifish 786. 44(5):776-780. 44(5	71402	Delizerie	T diaemonetes pagio	Daggerblade grass simmp	Orastaccaris	2000		u u			27,000	μу/∟	OVV	LAD	420	and 6.vv. / macroom		` '	1370
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Methylene chloride Americamysis bahia Opossum shrimp Crustaceans LC50 4 d NR U 256,000 µg/L SW LAB 9607 Protection Agency U.S.Environmental Environmental En	75092	Methylene chloride	Palaemonetes pugio	Daggerblade grass shrimp	Crustaceans	LC50	2	d d	S	М	108.500	ua/l	SW	LAB	3163				1990
Methylene chloride Americamysis bahia Opossum shrimp Crustaceans LC50 4 d NR U 256,000 µg/L SW LAB 9607 U.S.Environmental Impacts of Selected Water Pollutants U.S.EPA Contract No.68-01-4646, Duluth, MN:9 p. 1978 Description of the protection Agency of Selected Water Pollutants U.S.EPA Contract No.68-01-4646, Duluth, MN:9 p. 1978 Description of the protection Agency o		,	P distance pages					-	-		,	F9'-							
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Bromoform Americamysis bahia Opossum shrimp Crustaceans LC50 4 d NR U 24,400 μg/L SW LAB 9607 Protection Agency In-Depth Studies on Health and Environmental Impacts of Selected No.68-01-4646, No.68-01-46466, No.68-01-4646	75092	Methylene chloride	Americamysis bahia	Opossum shrimp	Crustaceans	LC50	4	d	NR	U	256,000	μg/L	SW	LAB	9607				1978
Bromoform Americamysis bahia Opossum shrimp Crustaceans LC50 4 d NR U 24,400 µg/L SW LAB 9607 Protection Agency Water Pollutants Duluth, MN :9 p. 1978 Report Covering Period October 1 Through December 1 Secure		,									,					ŭ ,			
Bromoform Americamysis bahia Opossum shrimp Crustaceans LC50 4 d NR U 24,400 µg/L SW LAB 9607 Protection Agency Water Pollutants Duluth, MN :9 p. 1978 Report Covering Period October 1 Through December 31, 1978:41 1979 Bromoform Penaeus aztecus Brown shrimp Crustaceans LC50 4 d F M 26,000 µg/L SW LAB 5880 Bean, and C.I. Gibson Environments 31, 1978:41 1979 Gibson, C.I., F.C. Tone, P. Wilkinson, J.W. Toxicity, Bioaccumulation and Lab., Richland,																II C Environmental	·		
Bromoform Penaeus aztecus Brown shrimp Crustaceans LC50 4 d F M 26,000 µg/L SW LAB 5880 Bean, and C.I. Gibson Environments 31, 1978:41 1979 Gibson, C.I., F.C. Tone, P. Wilkinson, J.W. Toxicity, Bioaccumulation and Lab., Richland,	75252	Bromoform	Americamysis bahia	Opossum shrimp	Crustaceans	LC50	4	d	NR	U	24,400	μg/L	SW	LAB	9607				1978
Bromoform Penaeus aztecus Brown shrimp Crustaceans LC50 4 d F M 26,000 µg/L SW LAB 5880 Anderson, D.R., R.M. Biocide By-Products in Aquatic Through December 31, 1978:41 1979 Gibson, C.I., F.C. Tone, P. Wilkinson, J.W. Toxicity, Bioaccumulation and Lab., Richland,																		Report Covering	
Bromoform Penaeus aztecus Brown shrimp Crustaceans LC50 4 d F M 26,000 µg/L SW LAB 5880 Bean, and C.I. Gibson Environments 31, 1978:41 1979 Gibson, C.I., F.C. Tone, Pacific Northwest P. Wilkinson, J.W. Toxicity, Bioaccumulation and Lab., Richland,																Anderson D.P. P.M.	Riocide By-Products in Aquatic		
P. Wilkinson, J.W. Toxicity, Bioaccumulation and Lab., Richland,	75252	Bromoform	Penaeus aztecus	Brown shrimp	Crustaceans	LC50	4	d	F	М	26,000	μg/L	SW	LAB	5880				1979
																P. Wilkinson, J.W. Blaylock, and R.E.		Lab., Richland, WA:40 p.(U.S.NTIS	
	75252	Bromoform	Penaeus aztecus	Brown shrimp	Crustaceans	LC50	4	d	F	М	26,000	μg/L	SW	LAB	6336		Marine Species		1981

Integral Consulting Inc. Page 6 of 23

*Chlorobenzene da	ta presented in Appendix A	T					1 =	1						T				
						Exposure Duration	Duration Units	Exposure	Chemical		Conc	Media	Test	Reference				Publication
CAS Number	Chemical Name	Species Scientific Name	Species Common Name	Species Group	Endpoint	(Days)	(Days)	Туре		Concentration			Location	Number		Title	Source	Year
																		Ī
	4.0.0														Andersen, H.R., L.	Development of Copepod Nauplii to	Facility Table 1 Obs	
84662	1,2-Benzenedicarboxylic acid, Diethyl ester	Acartia tonsa	Calanoid copepod	Crustaceans	LC50	2	d	s	U	9,000	ua/L	sw	LAB	66691	Sorensen, and K.O. Kusk	Copepodites - a Parameter for Chronic Toxicity Including Endocrine Disruption	Environ.Toxicol.Che m. 20(12):2821-2829	2001
	, , , , , , , , , , , , , , , , , , , ,						-			-,	P-3-							
84662	1,2-Benzenedicarboxylic acid, Diethyl ester	Nitocra spinipes	Harpacticoid copepod	Crustaceans	LC50	4	d	S	U	74,000	ua/I	sw	LAB	10905	Bengtsson, B.E., and M. Tarkpea	The Acute Aquatic Toxicity of Some Substances Carried by Ships	Mar.Pollut.Bull. 14(6):213-214	1983
0 1002	dola, Blothyr obtor	Titleora opinipos	Transparationa dopopou	Oraciacoano	2000		<u> </u>			7 1,000	μg/L		2,12	10000	Титрои	Cubotaneed Carried by Chipo	11(0).210 211	1000
																In-Depth Studies on Health and	U.S.EPA Contract	
84662	1,2-Benzenedicarboxylic acid, Diethyl ester	Americamysis bahia	Opossum shrimp	Crustaceans	LC50	4	4	NR	U	7,590	/1	sw	LAB	9607	U.S.Environmental Protection Agency	Environmental Impacts of Selected Water Pollutants	No.68-01-4646, Duluth, MN :9 p.	1978
04002	acid, Dietriyi ester	Americaniysis bania	Opossum smilip	Crustaceans	LCSU	4	u	INK	U	7,390	μg/L	SVV	LAD	9607	Protection Agency	Sensitivity Comparisons of Estuarine	Duiutii, iviiv .9 p.	1976
																Benthic Animals Exposed to Toxicants	EPA 600/X-87/167,	
	1,2-Benzenedicarboxylic					_		_			_				Tagatz, M.E., and R.S.	in Single Species Acute Tests and	U.S.EPA, Gulf	
84742	acid, Dibutyl ester	Laevicardium mortoni	Morton's egg cockle	Molluscs	LC50	4	d	F	M	1,100	μg/L	SW	LAB	7410	Stanley	Community Tests	Breeze, FL :16 p.	1987
															Linden, E., B.E.	and Pesticide Formulations Against Two Brackish Water Organisms, the	8(11/12):843-851 (Author	
	1,2-Benzenedicarboxylic														Bengtsson, O. Svanberg,	0 ,	Communication	
84742	acid, Dibutyl ester	Nitocra spinipes	Harpacticoid copepod	Crustaceans	LC50	4	d	S	U	1,700	μg/L	SW	LAB	5185	and G. Sundstrom	Harpacticoid Nitocra spinipes	Used) (OECDG Data	1979
																Sensitivity Comparisons of Estuarine	EDA 600/V 07/407	
	1,2-Benzenedicarboxylic														Tagatz, M.E., and R.S.	Benthic Animals Exposed to Toxicants in Single Species Acute Tests and	EPA 600/X-87/167, U.S.EPA, Gulf	
84742	acid, Dibutyl ester	Leptosynapta inhaerens	Sea cucumber	Invertebrates	LC50	4	d	F	M	2,900	μg/L	SW	LAB	7410	Stanley	Community Tests	Breeze, FL :16 p.	1987
																Sensitivity Comparisons of Estuarine		
	1.2 Danzanadiaarhayadia														Togeta M.C. and D.C.	Benthic Animals Exposed to Toxicants	EPA 600/X-87/167, U.S.EPA, Gulf	
84742	1,2-Benzenedicarboxylic acid, Dibutyl ester	Armandia maculata	Polychaete or Opheliid worm	Worms	LC50	4	d	F	М	2,900	ua/l	sw	LAB	7410	Tagatz, M.E., and R.S. Stanley	in Single Species Acute Tests and Community Tests	Breeze, FL :16 p.	1987
-	,,						-			,	P-3-					Sensitivity Comparisons of Estuarine		
																Benthic Animals Exposed to Toxicants	EPA 600/X-87/167,	
84742	1,2-Benzenedicarboxylic acid, Dibutyl ester	Corophium acherusicum	Scud	Crustaceans	LC50	1	4	F	М	450	μg/L	SW	LAB	7410	Tagatz, M.E., and R.S. Stanley	in Single Species Acute Tests and Community Tests	U.S.EPA, Gulf Breeze, FL :16 p.	1987
04742	aciu, Dibutyi estei	Coroprilain acherusicam	Scuu	Crustacearis	LCSU	- 4	u	'	IVI	430	μg/L	300	LAD	7410	Kaley, W.J. Adams, O.	Community resis	ыееде, г.с. по р.	1907
	1,2-Benzenedicarboxylic														Hicks, P.R. Michael,			
	acid, Butyl phenylmethyl											0144		4=000	V.W. Saeger, and G.A.	An Environmental Safety Assessment	Environ.Sci.Technol.	
85687	ester	Americamysis bahia	Opossum shrimp	Crustaceans	LC50	4	a	S	U	900	μg/L	SW	LAB	15239	LeBlanc	of Butyl Benzyl Phthalate	14(3):301-305	1980
	1,2-Benzenedicarboxylic															In-Depth Studies on Health and	U.S.EPA Contract	
	acid, Butyl phenylmethyl														U.S.Environmental	Environmental Impacts of Selected	No.68-01-4646,	
85687	ester	Americamysis bahia	Opossum shrimp	Crustaceans	LC50	4	d	NR	U	9,630	μg/L	SW	LAB	9607	Protection Agency	Water Pollutants	Duluth, MN :9 p.	1978
															Tjeerdema, R.S., T.W.M.	Sublethal Effects of Pentachlorophenol in the Abalone (Haliotis rufescens) as		
															Fan, R.M. Higashi, and	Measured by In Vivo 31P NMR	J.Biochem.Toxicol.	
87865	Pentachlorophenol	Haliotis rufescens	Red abalone	Molluscs	LC50	0.25	d	F	U	1,600	μg/L	SW	LAB	3798	D.G. Crosby	Spectroscopy	6(1):45-56	1991
																	5 " 5	
															Barahona, M.V., and S.	Comparative Sensitivity of Three Age Classes of Artemia salina Larvae to	Bull.Environ.Contam. Toxicol. 56(2):271-	
87865	Pentachlorophenol	Artemia salina	Brine shrimp	Crustaceans	LC50	0.5	d	NR	U	12,100	μg/L	SW	LAB	16436	Sanchez-Fortun	Several Phenolic Compounds	278	1996
															Hooftman P.N. and G.I.	The Determination of Toxic Effects of Pollutants with the Marine Polychaete	Ecotoxicol.Environ.S	
87865	Pentachlorophenol	Ophryotrocha diadema	Polychaete	Worms	LC50	1	d	R	M	1,500	μα/L	sw	LAB	6435	Vink	Worm Ophryotrocha diadema	af. 4(3):252-262	1980
	·									,					D. Rossel, J. Tarradellas,			
															H. Meyer, H. Saiah, P.	Cyst-Based Ecotoxicological Tests		
87865	Pentachlorophenol	Artemia salina	Brine shrimp	Crustaceans	LC50	1	d	NR	U	3,920	ug/I	SW	LAB	17289	Vogel, C. Delisle, and C. Blaise	Using Anostracans: Comparison of Two Species of Streptocephalus	Environ.Toxicol.Wate r Qual. 9(4):317-326	1994
	. S.Mas.morophonor									0,020	µ9, ∟	<u> </u>		200		Species of Chapterson Finance	. 300 5(1).011 020	.501
																Comparative Sensitivity of Three Age	Bull.Environ.Contam.	
07065	Dontoobloreshand	Artomia galina	Princ chrimp	Cruotoocono	LC50		4	ND		0.000	/1	CIAI	LAB	16436	Barahona, M.V., and S. Sanchez-Fortun	Classes of Artemia salina Larvae to	Toxicol. 56(2):271-	1006
87865	Pentachlorophenol	Artemia salina	Brine shrimp	Crustaceans	LC50	1	u	NR	U	3,600	μg/L	SW	LAB	10436	Sanchez-Fortun	Several Phenolic Compounds	278	1996
																Comparative Sensitivity of Three Age	Bull.Environ.Contam.	
					1 1										Barahona, M.V., and S.	Classes of Artemia salina Larvae to	Toxicol. 56(2):271-	
87865	Pentachlorophenol	Artemia salina	Brine shrimp	Crustaceans	LC50	1	d	NR	U	3,600	μg/L	SW	LAB	16436	Sanchez-Fortun	Several Phenolic Compounds	278	1996

Integral Consulting Inc. Page 7 of 23

*Chlorobenzene da	ita presented in Appendix A	1	<u> </u>	T	1	Evpoour	Duration	1	1	I Cono				1		1	
						Exposure Duration		Exposure	Chemical	Conc Units	Media	Test	Reference				Publication
CAS Number	Chemical Name	Species Scientific Name	Species Common Name	Species Group	Endpoint	(Days)	(Days)	Туре	Analysis	Concentration (µg/L)	Туре	Location	Number	Author	Title	Source	Year
87865	Pentachlorophenol	Ophryotrocha diadema	Polychaete	Worms	LC50		1 d	R	М	2,400 μg/L	SW	LAB	6435	Hooftman, R.N., and G.J. Vink	The Determination of Toxic Effects of Pollutants with the Marine Polychaete Worm Ophryotrocha diadema	Ecotoxicol.Environ.S af. 4(3):252-262	1980
87865	Pentachlorophenol	Dinophilus gyrociliatus	Archiannelid	Worms	LC50		1 d	R	U	1,600 μg/L	sw	LAB	11940	Carr, R.S., M.D. Curran, and M. Mazurkiewicz	Evaluation of the Archiannelid Dinophilus gyrociliatus for Use in Short- Term Life-Cycle Toxicity Tests	-Environ.Toxicol.Che m. 5(7):703-712	1986
87865	Pentachlorophenol	Dinophilus gyrociliatus	Archiannelid	Worms	LC50		1 d	R	U	1,600 μg/L	SW	LAB	11940	Carr, R.S., M.D. Curran, and M. Mazurkiewicz	Evaluation of the Archiannelid Dinophilus gyrociliatus for Use in Short- Term Life-Cycle Toxicity Tests	-Environ.Toxicol.Che m. 5(7):703-712	1986
87865	Pentachlorophenol	Dinophilus gyrociliatus	Archiannelid	Worms	LC50		1 d	R	U	1,081 μg/L	SW	LAB	11940	Carr, R.S., M.D. Curran, and M. Mazurkiewicz	Evaluation of the Archiannelid Dinophilus gyrociliatus for Use in Short- Term Life-Cycle Toxicity Tests	-Environ.Toxicol.Che m. 5(7):703-712	1986
87865	Pentachlorophenol	Penaeus duorarum	Northern pink shrimp	Crustaceans	LC50		1 d	S	U	8,200 μg/L	sw	LAB	15051	Bentley, R.E., T. Heitmuller, B.H. Sleight III, and P.R. Parrish	Acute Toxicity of Pentachlorophenol to Bluegill (Lepomis macrochirus), Rainbow Trout (Salmo gairdneri), and Pink Shrimp (Penaeus duorarum)	WA-6-99-1414-B, U.S.EPA, Washington, D.C. :13 p.	1975
87865	Pentachlorophenol	Gammarus duebeni	Scud	Crustaceans	LC50		1 d	R	U	723 μg/L	sw	LAB	18971	Lawrence, A.J., and C. Poulter	Development of a Sub-lethal Pollution Bioassay Using the Estuarine Amphipod Gammarus duebeni	Water Res. 32(3):569-578	1998
87865	Pentachlorophenol	Dinophilus gyrociliatus	Archiannelid	Worms	LC50		1 d	R	U	689 μg/L	SW	LAB	11940	Carr, R.S., M.D. Curran, and M. Mazurkiewicz	Evaluation of the Archiannelid Dinophilus gyrociliatus for Use in Short- Term Life-Cycle Toxicity Tests	-Environ.Toxicol.Che m. 5(7):703-712	1986
87865	Pentachlorophenol	Dinophilus gyrociliatus	Archiannelid	Worms	LC50		1 d	R	U	718 µg/L	sw	LAB	11940	Carr, R.S., M.D. Curran, and M. Mazurkiewicz	Evaluation of the Archiannelid Dinophilus gyrociliatus for Use in Short- Term Life-Cycle Toxicity Tests	-Environ.Toxicol.Che m. 5(7):703-712	1986
87865	Pentachlorophenol	Dinophilus gyrociliatus	Archiannelid	Worms	LC50		1 d	R	U	541 μg/L	sw	LAB	11940	Carr, R.S., M.D. Curran, and M. Mazurkiewicz	Evaluation of the Archiannelid Dinophilus gyrociliatus for Use in Short- Term Life-Cycle Toxicity Tests	-Environ.Toxicol.Che m. 5(7):703-712	1986
87865	Pentachlorophenol	Ampelisca araucana	Gammarid amphipod	Crustaceans	LC50		2 d	NR	U	90 μg/L	SW	LAB	54390	Soto, E., A. Larrain, and E. Bay-Schmith	Sensitivity of Ampelisca araucana Juveniles (Crustacea: Amphipoda) to Organic and Inorganic Toxicants in Tests of Acute Toxicity	Bull.Environ.Contam. Toxicol. 64(4):574- 578	2000
87865	Pentachlorophenol	Ophryotrocha diadema	Polychaete	Worms	LC50		2 d	R	M	1,500 µg/L	sw	LAB	6435	Hooftman, R.N., and G.J. Vink	The Determination of Toxic Effects of Pollutants with the Marine Polychaete Worm Ophryotrocha diadema	Ecotoxicol.Environ.S af. 4(3):252-262	1980
87865	Pentachlorophenol	Ophryotrocha diadema	Polychaete	Worms	LC50		2 d	NR	M	1,400 µg/L	sw	LAB	15149	Adema, D.M.M., and G.J. Vink	1,1,2-Trichloroethane, Dieldrin, Pentacholorophenol, and 3,4- Dichloroaniline for Marine and Fresh Water Organisms	Chemosphere 10(6):533-554 (OECDG Data File)	1981
87865	Pentachlorophenol	Crepidula fornicata	Slipper limpet	Molluscs	LC50		2 d	NR	М	1,200 µg/L	sw	LAB	15149	Adema, D.M.M., and G.J.	1,1,2-Trichloroethane, Dieldrin, Pentacholorophenol, and 3,4- Dichloroaniline for Marine and Fresh Water Organisms	Chemosphere 10(6):533-554 (OECDG Data File)	1981
87865	Pentachlorophenol	Dinophilus gyrociliatus	Archiannelid	Worms	LC50		2 d	R	U	1,131 μg/L	SW	LAB	11940	Carr, R.S., M.D. Curran, and M. Mazurkiewicz	Evaluation of the Archiannelid Dinophilus gyrociliatus for Use in Short- Term Life-Cycle Toxicity Tests	-Environ.Toxicol.Che m. 5(7):703-712	1986
87865	Pentachlorophenol	Ophryotrocha diadema	Polychaete	Worms	LC50		2 d	R	M	1,100 µg/L	SW	LAB	6435	Hooftman, R.N., and G.J.	The Determination of Toxic Effects of Pollutants with the Marine Polychaete Worm Ophryotrocha diadema	Ecotoxicol.Environ.S af. 4(3):252-262	1980
87865	Pentachlorophenol	Ophryotrocha diadema	Polychaete	Worms	LC50		2 d	NR	М	1,100 µg/L	sw	LAB	15149		1,1,2-Trichloroethane, Dieldrin, Pentacholorophenol, and 3,4- Dichloroaniline for Marine and Fresh Water Organisms	Chemosphere 10(6):533-554 (OECDG Data File)	1981

Integral Consulting Inc. Page 8 of 23

Cilioropenzene da	ta presented in Appendix A		1		T	- Fymanium	Duration		I	LCana	1				ı	1	
						Exposure Duration	Duration Units	Exposure	Chemical	Conc Units		Test	Reference	l			Publication
CAS Number	Chemical Name	Species Scientific Name	Species Common Name	Species Group	Endpoint	(Days)	(Days)	Туре	Analysis	Concentration (μg/L)	Туре	Location	Number	Author	Title	Source	Year
87865	Pentachlorophenol	Artemia salina	Brine shrimp	Crustaceans	LC50		2 d	NR	М	20,000 μg/L	sw	LAB	15149	Adema, D.M.M., and G.J Vink	1,1,2-Trichloroethane, Dieldrin, Pentacholorophenol, and 3,4- Dichloroaniline for Marine and Fresh Water Organisms	Chemosphere 10(6):533-554 (OECDG Data File)	1981
87865	Pentachlorophenol	Penaeus duorarum	Northern pink shrimp	Crustaceans	LC50		2 d	S	U	7,400 µg/L	sw	LAB	15051	Bentley, R.E., T. Heitmuller, B.H. Sleight III, and P.R. Parrish	Acute Toxicity of Pentachlorophenol to Bluegill (Lepomis macrochirus), Rainbow Trout (Salmo gairdneri), and Pink Shrimp (Penaeus duorarum)	WA-6-99-1414-B, U.S.EPA, Washington, D.C. :13 p.	1975
87865	Pentachlorophenol	Artemia salina	Brine shrimp	Crustaceans	LC50		2 d	NR	М	5,800 μg/L	SW	LAB	15149	Adema, D.M.M., and G.J Vink	1,1,2-Trichloroethane, Dieldrin, Pentacholorophenol, and 3,4- Dichloroaniline for Marine and Fresh Water Organisms	Chemosphere 10(6):533-554 (OECDG Data File)	1981
87865	Pentachlorophenol	Gammarus duebeni	Scud	Crustaceans	LC50		2 d	R	U	363 μg/L	SW	LAB	18971	Lawrence, A.J., and C. Poulter	Development of a Sub-lethal Pollution Bioassay Using the Estuarine Amphipod Gammarus duebeni	Water Res. 32(3):569- 578	1998
87865	Pentachlorophenol	Artemia salina	Brine shrimp	Crustaceans	LC50		2 d	NR	U	300 μg/L	SW	LAB	16436	Barahona, M.V., and S. Sanchez-Fortun	Comparative Sensitivity of Three Age Classes of Artemia salina Larvae to Several Phenolic Compounds	Bull.Environ.Contam. Toxicol. 56(2):271- 278	1996
87865	Pentachlorophenol	Temora longicornis	Calanoid copepod	Crustaceans	LC50		2 d	NR	М	200 μg/L	SW	LAB	15149	Adema, D.M.M., and G.J Vink	1,1,2-Trichloroethane, Dieldrin, Pentacholorophenol, and 3,4- Dichloroaniline for Marine and Fresh Water Organisms	Chemosphere 10(6):533-554 (OECDG Data File)	1981
87865	Pentachlorophenol	Dinophilus gyrociliatus	Archiannelid	Worms	LC50		2 d	R	U	. 5 568 μg/L	SW	LAB	11940	Carr, R.S., M.D. Curran, and M. Mazurkiewicz	Evaluation of the Archiannelid Dinophilus gyrociliatus for Use in Short- Term Life-Cycle Toxicity Tests		1986
87865	Pentachlorophenol	Chaetogammarus marinus	Amphipod	Crustaceans	LC50		2 d	NR	M	580 μg/L	sw	LAB	15149	Adema, D.M.M., and G.J Vink	1,1,2-Trichloroethane, Dieldrin, Pentacholorophenol, and 3,4- Dichloroaniline for Marine and Fresh Water Organisms	Chemosphere 10(6):533-554 (OECDG Data File)	1981
87865	Pentachlorophenol	Chaetogammarus marinus	Amphipod	Crustaceans	LC50		2 d	NR	М	600 μg/L	sw	LAB	15149	Adema, D.M.M., and G.J Vink	1,1,2-Trichloroethane, Dieldrin, Pentacholorophenol, and 3,4- Dichloroaniline for Marine and Fresh Water Organisms	Chemosphere 10(6):533-554 (OECDG Data File)	1981
87865	Pentachlorophenol	Crangon septemspinosa	Bay shrimp, Sand shrimp	Crustaceans	LC50	2.7	75 d	R	М	3,300 µg/L	sw	LAB	5810	McLeese, D.W., V. Zitko, and M.R. Peterson	Structure-Lethality Relationships for Phenols, Anilines and Other Aromatic Compounds in Shrimp and Clams	Chemosphere 8(2):53- 57 (OECDG Data File)	1979
87865	Pentachlorophenol	Molgula sp.	Sea-squirt, Sea grapes	Miscellaneous	LC50		3 d	F	М	46 μg/L	SW	LAB	7410	Tagatz, M.E., and R.S. Stanley	Sensitivity Comparisons of Estuarine Benthic Animals Exposed to Toxicants in Single Species Acute Tests and Community Tests	EPA 600/X-87/167, U.S.EPA, Gulf Breeze, FL :16 p.	1987
87865	Pentachlorophenol	Dinophilus gyrociliatus	Archiannelid	Worms	LC50		3 d	R	U	1,049 µg/L	SW	LAB	11940	Carr, R.S., M.D. Curran, and M. Mazurkiewicz	Evaluation of the Archiannelid Dinophilus gyrociliatus for Use in Short- Term Life-Cycle Toxicity Tests	- Environ.Toxicol.Che m. 5(7):703-712	1986
87865	Pentachlorophenol	Ophryotrocha diadema	Polychaete	Worms	LC50		3 d	R	М	1,200 µg/L	SW	LAB	6435	Hooftman, R.N., and G.J. Vink	The Determination of Toxic Effects of Pollutants with the Marine Polychaete Worm Ophryotrocha diadema	Ecotoxicol.Environ.S af. 4(3):252-262	1980
87865	Pentachlorophenol	Ophryotrocha diadema	Polychaete	Worms	LC50		3 d	R	М	900 μg/L	SW	LAB	6435	Hooftman, R.N., and G.J. Vink	The Determination of Toxic Effects of Pollutants with the Marine Polychaete Worm Ophryotrocha diadema	Ecotoxicol.Environ.S af. 4(3):252-262	1980
87865	Pentachlorophenol	Dinophilus gyrociliatus	Archiannelid	Worms	LC50		3 d	R	U	472 μg/L	SW	LAB	11940	Carr, R.S., M.D. Curran, and M. Mazurkiewicz	Evaluation of the Archiannelid Dinophilus gyrociliatus for Use in Short- Term Life-Cycle Toxicity Tests	-Environ.Toxicol.Che m. 5(7):703-712	1986
87865	Pentachlorophenol	Corophium acherusicum	Scud	Crustaceans	LC50		4 d	F	M	82 µg/L	SW	LAB	7410	Tagatz, M.E., and R.S. Stanley	Sensitivity Comparisons of Estuarine Benthic Animals Exposed to Toxicants in Single Species Acute Tests and Community Tests		1987

Integral Consulting Inc. Page 9 of 23

*Chlorobenzene da	ta presented in Appendix A														-			
						Exposure Duration	Duration Units	Exposure	Chemical		Conc Units	Media	Test	Reference				Publication
CAS Number	Chemical Name	Species Scientific Name	Species Common Name	Species Group	Endpoint	(Days)	(Days)	Туре		Concentration			Location	Number	Author	Title	Source	Year
															Tagatz, M.E., and R.S.	Sensitivity Comparisons of Estuarine Benthic Animals Exposed to Toxicants in Single Species Acute Tests and	EPA 600/X-87/167, U.S.EPA, Gulf	
87865	Pentachlorophenol	Laevicardium mortoni	Morton's egg cockle	Molluscs	LC50	4	d	F	М	163	μg/L	SW	LAB	7410	Stanley	Community Tests	Breeze, FL :16 p.	1987
87865	Pentachlorophenol	Nitocra spinipes	Harpacticoid copepod	Crustaceans	LC50	4	d	F	U	150	μg/L	SW	LAB	2332	Bengtsson, B.E., and B. Bergstrom	A Flowthrough Fecundity Test with Nitocra spinipes (Harpacticoidea Crustacea) for Aquatic Toxicity	Ecotoxicol.Environ.S af. 14:260-268	1987
87865	Pentachlorophenol	Nitocra spinipes	Harpacticoid copepod	Crustaceans	LC50	4	d	F	U	70	μg/L	SW	LAB	2332	Bengtsson, B.E., and B. Bergstrom	A Flowthrough Fecundity Test with Nitocra spinipes (Harpacticoidea Crustacea) for Aquatic Toxicity	Ecotoxicol.Environ.S af. 14:260-268	1987
87865	Pentachlorophenol	Heteromastus filiformis	Capitellid thread worm	Worms	LC50	4	d	F	М	67	μg/L	SW	LAB	7410	Tagatz, M.E., and R.S. Stanley	Sensitivity Comparisons of Estuarine Benthic Animals Exposed to Toxicants in Single Species Acute Tests and Community Tests	EPA 600/X-87/167, U.S.EPA, Gulf Breeze, FL :16 p.	1987
87865	Pentachlorophenol	Limnodriloides verrucosus	Oligochaete	Worms	LC50	4	d	R	U	50	μg/L	SW	LAB	10602	Chapman, P.M., M.A. Farrell, and R.O. Brinkhurst	Relative Tolerances of Selected Aquatic Oligochaetes to Combinations of Pollutants and Environmental Factors	Aquat.Toxicol. 2(1):69-78	1982
87865	Pentachlorophenol	Leptosynapta inhaerens	Sea cucumber	Invertebrates	LC50	4	ł d	F	М	37	΄μg/L	SW	LAB	7410	Tagatz, M.E., and R.S. Stanley	Sensitivity Comparisons of Estuarine Benthic Animals Exposed to Toxicants in Single Species Acute Tests and Community Tests	EPA 600/X-87/167, U.S.EPA, Gulf Breeze, FL :16 p.	1987
87865	Pentachlorophenol	Palaemonetes pugio	Daggerblade grass shrimp	Crustaceans	LC50	4	d	R	U	2,500		SW	LAB	4894	Rao, K.R., F.R. Fox, P.J. Conklin, and A.C. Cantelmo	Comparative Toxicology and Pharmacology of Chlorophenols: Studies on the Grass Shrimp, Palaemonetes pugio	A.Calabrese, F.P.Thurberg, and W.B.Vernberg (Eds.), Biological Monitoring	, 1981
87865	Pentachlorophenol	Artemia salina	Brine shrimp	Crustaceans	LC50	4	d	NR	м	4,600	μg/L	SW	LAB	15149	Adema, D.M.M., and G.J Vink	1,1,2-Trichloroethane, Dieldrin, Pentacholorophenol, and 3,4- Dichloroaniline for Marine and Fresh Water Organisms	Chemosphere 10(6):533-554 (OECDG Data File)	1981
87865	Pentachlorophenol	Ophryotrocha diadema	Polychaete	Worms	LC50	4	d	R	М	1,200	μg/L	sw	LAB	6435	Hooftman, R.N., and G.J Vink	The Determination of Toxic Effects of Pollutants with the Marine Polychaete Worm Ophryotrocha diadema	Ecotoxicol.Environ.S af. 4(3):252-262	1980
87865	Pentachlorophenol	Ophryotrocha diadema	Polychaete	Worms	LC50	4	ł d	NR	м	1,200	ua/L	SW	LAB	15149	Adema, D.M.M., and G.J Vink	1,1,2-Trichloroethane, Dieldrin, Pentacholorophenol, and 3,4- Dichloroaniline for Marine and Fresh Water Organisms	Chemosphere 10(6):533-554 (OECDG Data File)	1981
87865	Pentachlorophenol	Temora longicornis	Calanoid copepod	Crustaceans	LC50	4	ld	NR	М		μg/L	SW	LAB	15149	Adema, D.M.M., and G.J	1,1,2-Trichloroethane, Dieldrin, Pentacholorophenol, and 3,4- Dichloroaniline for Marine and Fresh Water Organisms	Chemosphere 10(6):533-554 (OECDG Data File)	1981
87865	Pentachlorophenol	Monopylephorus cuticulatus	Tubificid	Worms	LC50	4	d	R	U		μg/L	SW	LAB	10602	Chapman, P.M., M.A. Farrell, and R.O. Brinkhurst	Relative Tolerances of Selected Aquatic Oligochaetes to Combinations of Pollutants and Environmental	Aquat.Toxicol. 2(1):69-78	1982
87865	Pentachlorophenol	Monopylephorus cuticulatus	Tubificid	Worms	LC50	4	d	R	U		i μg/L	sw	LAB	10602	Chapman, P.M., M.A. Farrell, and R.O. Brinkhurst	Relative Tolerances of Selected Aquatic Oligochaetes to Combinations of Pollutants and Environmental Factors	Aquat.Toxicol. 2(1):69-78	1982
87865	Pentachlorophenol	Monopylephorus cuticulatus	Tubificid	Worms	LC50	4	d	R	U	1,750		SW	LAB	10602	Chapman, P.M., M.A. Farrell, and R.O. Brinkhurst	Relative Tolerances of Selected Aquatic Oligochaetes to Combinations of Pollutants and Environmental	Aquat.Toxicol. 2(1):69-78	1982
87865	Pentachlorophenol	Quistadrilus multisetosus	Oligochaete	Worms	LC50	4	ł d	R	U		μg/L	SW	LAB	10602	Chapman, P.M., M.A. Farrell, and R.O. Brinkhurst	Relative Tolerances of Selected Aquatic Oligochaetes to Combinations of Pollutants and Environmental	Aquat.Toxicol. 2(1):69-78	1982
87865	Pentachlorophenol	Mytilus edulis	Common bay mussel,blue mussel	Molluscs	LC50	4	d	NR	М	18,000		sw	LAB	15149	Adema, D.M.M., and G.J Vink	1,1,2-Trichloroethane, Dieldrin, Pentacholorophenol, and 3,4-	Chemosphere 10(6):533-554 (OECDG Data File)	1981

Integral Consulting Inc. Page 10 of 23

*Chlorobenzene da	ita presented in Appendix A	-																
						Exposure Duration	Duration Units	Exposure	Chemical		Conc Units		Test	Reference				Publication
CAS Number	Chemical Name	Species Scientific Name	Species Common Name	Species Group	Endpoint	(Days)	(Days)	Туре		Concentration			Location	Number	Author	Title	Source	Year
															Adema, D.M.M., and G.J	1,1,2-Trichloroethane, Dieldrin, Pentacholorophenol, and 3,4- I. Dichloroaniline for Marine and Fresh	Chemosphere 10(6):533-554	
87865	Pentachlorophenol	Artemia salina	Brine shrimp	Crustaceans	LC50	4	1 d	NR	M	16,000	μg/L	SW	LAB	15149	Vink	Water Organisms	(OECDG Data File)	1981
87865	Pentachlorophenol	Crangon crangon	Common shrimp, sand shrimp	Crustaceans	LC50	2	1 d	NR	М	10,000	μg/L	SW	LAB	15149	Adema, D.M.M., and G.J Vink	1,1,2-Trichloroethane, Dieldrin, Pentacholorophenol, and 3,4- I. Dichloroaniline for Marine and Fresh Water Organisms	Chemosphere 10(6):533-554 (OECDG Data File)	1981
87865	Pentachlorophenol	Monopylephorus cuticulatus	Tubificid	Worms	LC50	4	4 d	R	U	450	μg/L	SW	LAB	10602	Chapman, P.M., M.A. Farrell, and R.O. Brinkhurst	Relative Tolerances of Selected Aquatic Oligochaetes to Combinations of Pollutants and Environmental Factors	Aquat.Toxicol. 2(1):69-78	1982
87865	Pentachlorophenol	Palaemonetes varians	Grass or Atlantic ditch shrimp	Crustaceans	LC50	2	4 d	NR	М	7,500	μg/L	SW	LAB	15149	Adema, D.M.M., and G.J Vink	1,1,2-Trichloroethane, Dieldrin, Pentacholorophenol, and 3,4- I. Dichloroaniline for Marine and Fresh Water Organisms	Chemosphere 10(6):533-554 (OECDG Data File)	1981
87865	Pentachlorophenol	Penaeus duorarum	Northern pink shrimp	Crustaceans	LC50	2	1 d	S	U	5,600	μg/L	sw	LAB	15051	Bentley, R.E., T. Heitmuller, B.H. Sleight III, and P.R. Parrish	Acute Toxicity of Pentachlorophenol to Bluegill (Lepomis macrochirus), Rainbow Trout (Salmo gairdneri), and Pink Shrimp (Penaeus duorarum)	WA-6-99-1414-B, U.S.EPA, Washington, D.C. :13 p.	1975
87865	Pentachlorophenol	Penaeus duorarum	Northern pink shrimp	Crustaceans	LC50	2	4 d	S	NR	5,600) ua/l	SW	LAB	344	Office of Pesticide Programs	Pesticide Ecotoxicity Database (Formerly: Environmental Effects Database (EEDB))	Environmental Fate and Effects Division, U.S.EPA, Washington, D.C.	2000
	. c.t.ac.t.optionol	. Shada dadididii		2.43.4304110						5,500	rg/⊏	†		• • • • • • • • • • • • • • • • • • • •				
87865	Pentachlorophenol	Monhystera disjuncta	Nematode	Worms	LC50	4	1 d	S	U	4,800	μg/L	sw	LAB	7215	Vranken, G., R. Vanderhaeghen, and C. Heip	Effects of Pollutants on Life-History Parameters of the Marine Nematode Monhystera disjuncta	ICES J.Mar.Sci. 48:325-334	1991
87865	Pentachlorophenol	Palaemonetes pugio	Daggerblade grass shrimp	Crustaceans	LC50	2	4 d	R	U	440	μg/L	SW	LAB	4894	Rao, K.R., F.R. Fox, P.J. Conklin, and A.C. Cantelmo	Comparative Toxicology and Pharmacology of Chlorophenols: Studies on the Grass Shrimp, Palaemonetes pugio	A.Calabrese, F.P.Thurberg, and W.B.Vernberg (Eds.), Biological Monitoring	
													5			Memorandum to S. Tagatz, U.S. EPA, Gulf Breeze, FL. Effect of PCP on	U.S.EPA, Gulf	
87865	Pentachlorophenol	Neanthes arenaceodentata	Polychaete worm	Worms	LC50		a d	S	U	435	μg/L	SW	LAB	56537	Rubinstein, N.	Neanthes arenaceodentata Ecological Effects of	Breeze, FL :2 p.	1981
87865	Pentachlorophenol	Gammarus tigrinus	Scud	Crustaceans	LC50	4	1 d	R	U	371	μg/L	SW	LAB	3033	Kierstead, W.G., and F. Barlocher	Pentachlorophenol on the Brackish- Water Amphipod Gammarus tigrinus	Arch.Hydrobiol. 115(1):149-156	1989
87865	Pentachlorophenol	Dinophilus gyrociliatus	Archiannelid	Worms	LC50	2	1 d	R	U	362	! μg/L	sw	LAB	11940	Carr, R.S., M.D. Curran, and M. Mazurkiewicz	Evaluation of the Archiannelid Dinophilus gyrociliatus for Use in Short Term Life-Cycle Toxicity Tests	- Environ.Toxicol.Che m. 5(7):703-712	1986
87865	Pentachlorophenol	Ensis minor	Jackknife clam	Molluscs	LC50	2	4 d	F	М	344	- μg/L	SW	LAB	7410	Tagatz, M.E., and R.S. Stanley	Sensitivity Comparisons of Estuarine Benthic Animals Exposed to Toxicants in Single Species Acute Tests and Community Tests	EPA 600/X-87/167, U.S.EPA, Gulf Breeze, FL :16 p.	1987
87865	Pentachlorophenol	Chaetogammarus marinus	Amphipod	Crustaceans	LC50	2	1 d	NR	М	450	μg/L	sw	LAB	15149	Adema, D.M.M., and G.J Vink	1,1,2-Trichloroethane, Dieldrin, Pentacholorophenol, and 3,4- I. Dichloroaniline for Marine and Fresh Water Organisms	Chemosphere 10(6):533-554 (OECDG Data File)	1981
	·						114								U.S.Environmental	Semi-Annual Report. April -September	Semi-Annual Rep., U.S.EPA, Gulf	
87865	Pentachlorophenol	Penaeus aztecus	Brown shrimp	Crustaceans	LC50	2	+ a	NR	NR	195	μg/L	SW	LAB	49012	Protection Agency Linden, E., B.E. Bengtsson, O. Svanberg	and Pesticide Formulations Against Two Brackish Water Organisms, the	Breeze, FL :51 p. 8(11/12):843-851 (Author Communication	1976
87865	Pentachlorophenol	Nitocra spinipes	Harpacticoid copepod	Crustaceans	LC50		1 d	S	U	270	μg/L	SW	LAB	5185	and G. Sundstrom	Harpacticoid Nitocra spinipes	Used) (OECDG Data	1979
87865	Pentachlorophenol	Monopylephorus cuticulatus	Tubificid	Worms	LC50	4	1 d	R	U	750	μg/L	sw	LAB	10602	Chapman, P.M., M.A. Farrell, and R.O. Brinkhurst	Aquatic Oligochaetes to Combinations of Pollutants and Environmental Factors	Aquat.Toxicol. 2(1):69-78	1982
87865 87865	·					2	1 d				μg/L μg/L				Chapman, P.M., M.A. Farrell, and R.O.	Relative Tolerances of Selected Aquatic Oligochaetes to Combinations of Pollutants and Environmental		<u>a</u>

Integral Consulting Inc. Page 11 of 23

*Chlorobenzene da	ta presented in Appendix A	<u> </u>	T		1	Exposure	Duration	I	1	Conc	1 1			1			
						Duration	Units	Exposure	Chemical	Units		Test	Reference				Publication
CAS Number	Chemical Name	Species Scientific Name	Species Common Name	Species Group	Endpoint	(Days)	(Days)	Type	Analysis	Concentration (μg/L)	Type	Location	Number	Author	Title	Source	Year
87865	Pentachlorophenol	Neanthes succinea	Clam worm	Worms	LC50		4 d	F	M	672 μg/L	sw	LAB	7410	Tagatz, M.E., and R.S. Stanley	Sensitivity Comparisons of Estuarine Benthic Animals Exposed to Toxicants in Single Species Acute Tests and Community Tests	EPA 600/X-87/167, U.S.EPA, Gulf Breeze, FL :16 p.	1987
87865	Pentachlorophenol	Stylodrilus heringianus	Oligochaete	Worms	LC50		4 d	R	U	800 μg/L	SW	LAB	10602	Chapman, P.M., M.A. Farrell, and R.O. Brinkhurst	Relative Tolerances of Selected Aquatic Oligochaetes to Combinations of Pollutants and Environmental Factors	Aquat.Toxicol. 2(1):69-78	1982
87865	Pentachlorophenol	Limnodriloides verrucosus	Oligochaete	Worms	LC50		4 d	R	U	780 μg/L	SW	LAB	10602	Chapman, P.M., M.A. Farrell, and R.O. Brinkhurst	Relative Tolerances of Selected Aquatic Oligochaetes to Combinations of Pollutants and Environmental Factors	Aquat.Toxicol. 2(1):69-78	1982
87865	Pentachlorophenol	Ophryotrocha diadema	Polychaete	Worms	LC50		4 d	NR	М	620 μg/L	sw	LAB	15149	Adema, D.M.M., and G.J. Vink	1,1,2-Trichloroethane, Dieldrin, Pentacholorophenol, and 3,4- Dichloroaniline for Marine and Fresh Water Organisms	Chemosphere 10(6):533-554 (OECDG Data File)	1981
87865	Pentachlorophenol	Dinophilus gyrociliatus	Archiannelid	Worms	LC50		4 d	R	U	612 μg/L	sw	LAB	11940	Carr, R.S., M.D. Curran, and M. Mazurkiewicz	Evaluation of the Archiannelid Dinophilus gyrociliatus for Use in Short- Term Life-Cycle Toxicity Tests	- Environ.Toxicol.Che m. 5(7):703-712	1986
87865	Pentachlorophenol	Limnodrilus hoffmeisteri	Tubificid worm, Oligochaete	Worms	LC50		4 d	R	U	600 μg/L	SW	LAB	10602	Chapman, P.M., M.A. Farrell, and R.O. Brinkhurst	Relative Tolerances of Selected Aquatic Oligochaetes to Combinations of Pollutants and Environmental Factors	Aquat.Toxicol. 2(1):69-78	1982
87865	Pentachlorophenol	Mulinia lateralis	Clam	Molluscs	LC50		4 d	F	M	482 μg/L	SW	LAB	7410	Tagatz, M.E., and R.S. Stanley	Sensitivity Comparisons of Estuarine Benthic Animals Exposed to Toxicants in Single Species Acute Tests and Community Tests	EPA 600/X-87/167, U.S.EPA, Gulf Breeze, FL :16 p.	1987
87865	Pentachlorophenol	Ophryotrocha diadema	Polychaete	Worms	LC50		4 d	R	M	600 μg/L	sw	LAB	6435	Hooftman, R.N., and G.J.	The Determination of Toxic Effects of Pollutants with the Marine Polychaete Worm Ophryotrocha diadema	Ecotoxicol.Environ.S af. 4(3):252-262	1980
87865	Pentachlorophenol	Limnodriloides verrucosus	Oligochaete	Worms	LC50		4 d	R	U	500 μg/L	sw	LAB	10602	Chapman, P.M., M.A. Farrell, and R.O. Brinkhurst	Relative Tolerances of Selected Aquatic Oligochaetes to Combinations of Pollutants and Environmental Factors	Aquat.Toxicol. 2(1):69-78	1982
87865	Pentachlorophenol	Palaemonetes pugio	Daggerblade grass shrimp	Crustaceans	LC50		4 d	NR	NR	515 μg/L	sw	LAB	49012	U.S.Environmental Protection Agency	Semi-Annual Report. April -September 1976	Semi-Annual Rep., U.S.EPA, Gulf Breeze, FL:51 p.	1976
87865	Pentachlorophenol	Tubifex tubifex	Tubificid worm	Worms	LC50		4 d	R	U	540 μg/L	sw	LAB	10602	Chapman, P.M., M.A. Farrell, and R.O. Brinkhurst	Relative Tolerances of Selected Aquatic Oligochaetes to Combinations of Pollutants and Environmental Factors	Aquat.Toxicol. 2(1):69-78	1982
87865	Pentachlorophenol	Chaetogammarus marinus	Amphipod	Crustaceans	LC50		4 d	NR	M	550 μg/L	SW	LAB	15149	Adema, D.M.M., and G.J. Vink	1,1,2-Trichloroethane, Dieldrin, Pentacholorophenol, and 3,4- Dichloroaniline for Marine and Fresh Water Organisms	Chemosphere 10(6):533-554 (OECDG Data File)	1981
87865	Pentachlorophenol	Artemia salina	Brine shrimp	Crustaceans	LC50		7 d	NR	M	4,500 μg/L	SW	LAB	15149	Adema, D.M.M., and G.J. Vink	1,1,2-Trichloroethane, Dieldrin, Pentacholorophenol, and 3,4- Dichloroaniline for Marine and Fresh Water Organisms	Chemosphere 10(6):533-554 (OECDG Data File)	1981
87865	Pentachlorophenol	Palaemonetes varians	Grass or Atlantic ditch shrimp	Crustaceans	LC50		7 d	NR	M	5,800 μg/L	SW	LAB	15149	Adema, D.M.M., and G.J. Vink	1,1,2-Trichloroethane, Dieldrin, Pentacholorophenol, and 3,4- Dichloroaniline for Marine and Fresh Water Organisms	Chemosphere 10(6):533-554 (OECDG Data File)	1981
87865	Pentachlorophenol	Crangon crangon	Common shrimp, sand shrimp	Crustaceans	LC50		7 d	NR	М	5,000 μg/L	sw	LAB	15149	Adema, D.M.M., and G.J.	1,1,2-Trichloroethane, Dieldrin, Pentacholorophenol, and 3,4- Dichloroaniline for Marine and Fresh Water Organisms	Chemosphere 10(6):533-554 (OECDG Data File)	1981
87865	Pentachlorophenol	Artemia salina	Brine shrimp	Crustaceans	LC50		7 d	NR	М	11,000 μg/L	SW	LAB	15149	Adema, D.M.M., and G.J. Vink	1,1,2-Trichloroethane, Dieldrin, Pentacholorophenol, and 3,4- Dichloroaniline for Marine and Fresh Water Organisms	Chemosphere 10(6):533-554 (OECDG Data File)	1981

Integral Consulting Inc. Page 12 of 23

*Chlorobenzene da	ta presented in Appendix A	<u> </u>	T	T	1	Evposuro	Duration		1	Cono	1 1		ı	1		T	
						Exposure Duration	Duration Units	Exposure	Chemical	Conc Units	Media	Test	Reference				Publication
CAS Number	Chemical Name	Species Scientific Name	Species Common Name	Species Group	Endpoint	(Days)	(Days)	Туре	Analysis	Concentration (μg/L)	Type	Location	Number	Author	Title	Source	Year
87865	Pentachlorophenol	Chaetogammarus marinus	Amphipod	Crustaceans	LC50		7 d	NR	M	420 μg/L	SW	LAB	15149	Adema, D.M.M., and G.J. Vink	1,1,2-Trichloroethane, Dieldrin, Pentacholorophenol, and 3,4- Dichloroaniline for Marine and Fresh Water Organisms	Chemosphere 10(6):533-554 (OECDG Data File)	1981
87865	Pentachlorophenol	Chaetogammarus marinus	Amphipod	Crustaceans	LC50		7 d	NR	M	280 μg/L	SW	LAB	15149	Adema, D.M.M., and G.J. Vink	1,1,2-Trichloroethane, Dieldrin, Pentacholorophenol, and 3,4- Dichloroaniline for Marine and Fresh Water Organisms	Chemosphere 10(6):533-554 (OECDG Data File)	1981
87865	Pentachlorophenol	Mytilus edulis	Common bay mussel,blue mussel	Molluscs	LC50		7 d	NR	М	950 μg/L	sw	LAB	15149	Adema, D.M.M., and G.J. Vink	1,1,2-Trichloroethane, Dieldrin, Pentacholorophenol, and 3,4- Dichloroaniline for Marine and Fresh Water Organisms	Chemosphere 10(6):533-554 (OECDG Data File)	1981
87865	Pentachlorophenol	Artemia salina	Brine shrimp	Crustaceans	LC50		7 d	NR	U	300 μg/L	SW	LAB	16436	Barahona, M.V., and S. Sanchez-Fortun	Comparative Sensitivity of Three Age Classes of Artemia salina Larvae to Several Phenolic Compounds	Bull.Environ.Contam. Toxicol. 56(2):271- 278	1996
87865	Pentachlorophenol	Crepidula fornicata	Slipper limpet	Molluscs	LC50		7 d	NR	M	460 μg/L	SW	LAB	15149	Adema, D.M.M., and G.J. Vink	1,1,2-Trichloroethane, Dieldrin, Pentacholorophenol, and 3,4- Dichloroaniline for Marine and Fresh Water Organisms	Chemosphere 10(6):533-554 (OECDG Data File)	1981
87865	Pentachlorophenol	Crassostrea virginica	American or virginia oyster	Molluscs	LC50	1	14 d	R	U	71 μg/L	SW	LAB	2400	Davis, H.C., and H. Hidu	Effects of Pesticides on Embryonic Development of Clams and Oysters and on Survival and Growth of the Larvae	Fish.Bull. 67(2):393- 404	1969
87865	Pentachlorophenol	Artemia salina	Brine shrimp	Crustaceans	LC50	1	14 d	NR	M	9,500 μg/L	SW	LAB	15149	Adema, D.M.M., and G.J. Vink	1,1,2-Trichloroethane, Dieldrin, Pentacholorophenol, and 3,4- Dichloroaniline for Marine and Fresh Water Organisms	Chemosphere 10(6):533-554 (OECDG Data File)	1981
87865	Pentachlorophenol	Chaetogammarus marinus	Amphipod	Crustaceans	LC50	1	14 d	NR	M	210 μg/L	SW	LAB	15149	Adema, D.M.M., and G.J. Vink	1,1,2-Trichloroethane, Dieldrin, Pentacholorophenol, and 3,4- Dichloroaniline for Marine and Fresh Water Organisms	Chemosphere 10(6):533-554 (OECDG Data File)	1981
87865	Pentachlorophenol	Chaetogammarus marinus	Amphipod	Crustaceans	LC50	1	14 d	NR	M	210 μg/L	SW	LAB	15149	Adema, D.M.M., and G.J. Vink	1,1,2-Trichloroethane, Dieldrin, Pentacholorophenol, and 3,4- Dichloroaniline for Marine and Fresh Water Organisms	Chemosphere 10(6):533-554 (OECDG Data File)	1981
87865	Pentachlorophenol	Mytilus edulis	Common bay mussel,blue mussel	Molluscs	LC50	1	14 d	NR	M	750 μg/L	SW	LAB	15149	Adema, D.M.M., and G.J. Vink	1,1,2-Trichloroethane, Dieldrin, Pentacholorophenol, and 3,4- Dichloroaniline for Marine and Fresh Water Organisms	Chemosphere 10(6):533-554 (OECDG Data File)	1981
87865	Pentachlorophenol	Chaetogammarus marinus	Amphipod	Crustaceans	LC50	2	21 d	NR	M	180 μg/L	sw	LAB	15149	Adema, D.M.M., and G.J. Vink	1,1,2-Trichloroethane, Dieldrin, Pentacholorophenol, and 3,4- Dichloroaniline for Marine and Fresh Water Organisms	Chemosphere 10(6):533-554 (OECDG Data File)	1981
87865	Pentachlorophenol	Chaetogammarus marinus	Amphipod	Crustaceans	LC50	2	21 d	NR	М	180 μg/L	SW	LAB	15149	Adema, D.M.M., and G.J. Vink	1,1,2-Trichloroethane, Dieldrin, Pentacholorophenol, and 3,4- Dichloroaniline for Marine and Fresh Water Organisms	Chemosphere 10(6):533-554 (OECDG Data File)	1981
87865	Pentachlorophenol	Artemia salina	Brine shrimp	Crustaceans	LC50	2	28 d	NR	M	4,400 μg/L	SW	LAB	15149	Adema, D.M.M., and G.J. Vink	1,1,2-Trichloroethane, Dieldrin, Pentacholorophenol, and 3,4- Dichloroaniline for Marine and Fresh Water Organisms	Chemosphere 10(6):533-554 (OECDG Data File)	1981
87865	Pentachlorophenol	Ophryotrocha diadema	Polychaete	Worms	LC50	2	28 d	NR	M	300 μg/L	SW	LAB	15149	Adema, D.M.M., and G.J. Vink	1,1,2-Trichloroethane, Dieldrin, Pentacholorophenol, and 3,4- Dichloroaniline for Marine and Fresh Water Organisms	Chemosphere 10(6):533-554 (OECDG Data File)	1981
87865	Pentachlorophenol	Ophryotrocha diadema	Polychaete	Worms	LC50	2	28 d	NR	M	280 μg/L	sw	LAB	15149	Adema, D.M.M., and G.J. Vink	1,1,2-Trichloroethane, Dieldrin, Pentacholorophenol, and 3,4- Dichloroaniline for Marine and Fresh Water Organisms	Chemosphere 10(6):533-554 (OECDG Data File)	1981
87865	Pentachlorophenol	Ophryotrocha diadema	Polychaete	Worms	LC50	3	30 d	NR	M	300 μg/L	sw	LAB	15149		1,1,2-Trichloroethane, Dieldrin, Pentacholorophenol, and 3,4- Dichloroaniline for Marine and Fresh Water Organisms	Chemosphere 10(6):533-554 (OECDG Data File)	1981

Integral Consulting Inc. Page 13 of 23

*Chlorobenzene da	ta presented in Appendix A	1	T	•	1				1	•		1	1		1			
							Ouration Units	Exposure	Chemical		Conc Units	Media	Test	Reference				Publication
CAS Number	Chemical Name	Species Scientific Name	Species Common Name	Species Group	Endpoint	(Days)	(Days)	Type	Analysis	Concentration	(µg/L)	Type	Location	Number	Author	Title	Source	Year
87865	Pentachlorophenol	Ophryotrocha diadema	Polychaete	Worms	LC50	41 d		NR	M	280	μg/L	SW	LAB	15149	Adema, D.M.M., and G.J Vink	1,1,2-Trichloroethane, Dieldrin, Pentacholorophenol, and 3,4- Dichloroaniline for Marine and Fresh Water Organisms	Chemosphere 10(6):533-554 (OECDG Data File)	1981
87865	Pentachlorophenol	Chaetogammarus marinus	Amphipod	Crustaceans	LC50	56 d		NR	M	180	μg/L	SW	LAB	15149	Adema, D.M.M., and G.J Vink	1,1,2-Trichloroethane, Dieldrin, Pentacholorophenol, and 3,4- Dichloroaniline for Marine and Fresh Water Organisms	Chemosphere 10(6):533-554 (OECDG Data File)	1981
88062	2,4,6-Trichlorophenol	Palaemonetes pugio	Daggerblade grass shrimp	Crustaceans	LC50	2 d		S	М	5,600	μg/L	SW	LAB	3163	Burton, D.T., and D.J. Fisher	Zinc, Ammonia, 3,3'-Dichlorobenzidine. 2,6-Dichloro-4-Nitroaniline, Methylene Chloride, and 2,4,6-Trichlorophenol to Juvenile Grass Shrimp and Killifish	Bull.Environ.Contam. Toxicol. 44(5):776- 783	1990
88062	2,4,6-Trichlorophenol	Palaemonetes pugio	Daggerblade grass shrimp	Crustaceans	LC50	4 d		R	U	1,210	μg/L	SW	LAB	4894	Rao, K.R., F.R. Fox, P.J. Conklin, and A.C. Cantelmo	Comparative Toxicology and Pharmacology of Chlorophenols: Studies on the Grass Shrimp, Palaemonetes pugio	A.Calabrese, F.P.Thurberg, and W.B.Vernberg (Eds.), Biological Monitoring	1981
88062	2,4,6-Trichlorophenol	Crangon septemspinosa	Bay shrimp, Sand shrimp	Crustaceans	LC50	4 d	l	R	M	2,700	μg/L	SW	LAB	5810	McLeese, D.W., V. Zitko, and M.R. Peterson	Structure-Lethality Relationships for Phenols, Anilines and Other Aromatic Compounds in Shrimp and Clams	Chemosphere 8(2):53 57 (OECDG Data File)	1979
88062	2,4,6-Trichlorophenol	Mya arenaria	Sand gaper, soft shell clam	Molluscs	LC50	4 d		R	M	3,900	μg/L	SW	LAB	5810	McLeese, D.W., V. Zitko, and M.R. Peterson	Structure-Lethality Relationships for Phenols, Anilines and Other Aromatic Compounds in Shrimp and Clams	Chemosphere 8(2):53- 57 (OECDG Data File)	1979
88062	2,4,6-Trichlorophenol	Palaemonetes pugio	Daggerblade grass shrimp	Crustaceans	LC50	4 d	ı	R	U	3,950	μg/L	SW	LAB	4894	Rao, K.R., F.R. Fox, P.J. Conklin, and A.C. Cantelmo	Comparative Toxicology and Pharmacology of Chlorophenols: Studies on the Grass Shrimp, Palaemonetes pugio	A.Calabrese, F.P.Thurberg, and W.B.Vernberg (Eds.), Biological Monitoring	1981
88755	2-Nitrophenol	Artemia salina	Brine shrimp	Crustaceans	LC50	0.5 d	l	NR	U	11,000	μg/L	SW	LAB	16436	Barahona, M.V., and S. Sanchez-Fortun	Comparative Sensitivity of Three Age Classes of Artemia salina Larvae to Several Phenolic Compounds	Bull.Environ.Contam. Toxicol. 56(2):271- 278	1996
88755	2-Nitrophenol	Artemia salina	Brine shrimp	Crustaceans	LC50	1 d	I	NR	U	6,500	μg/L	SW	LAB	16436	Barahona, M.V., and S. Sanchez-Fortun	Comparative Sensitivity of Three Age Classes of Artemia salina Larvae to Several Phenolic Compounds	Bull.Environ.Contam. Toxicol. 56(2):271- 278	1996
88755	2-Nitrophenol	Artemia salina	Brine shrimp	Crustaceans	LC50	1 d	I	NR	U	6,500	μg/L	SW	LAB	16436	Barahona, M.V., and S. Sanchez-Fortun	Comparative Sensitivity of Three Age Classes of Artemia salina Larvae to Several Phenolic Compounds	Bull.Environ.Contam. Toxicol. 56(2):271- 278	1996
88755	2-Nitrophenol	Artemia salina	Brine shrimp	Crustaceans	LC50	2 d	l	NR	U	2,100	μg/L	SW	LAB	16436	Barahona, M.V., and S. Sanchez-Fortun	Comparative Sensitivity of Three Age Classes of Artemia salina Larvae to Several Phenolic Compounds	Bull.Environ.Contam. Toxicol. 56(2):271- 278	1996
88755	2-Nitrophenol	Crangon septemspinosa	Bay shrimp, Sand shrimp	Crustaceans	LC50	4 d	l	R	М	32,900	μg/L	SW	LAB	5810	McLeese, D.W., V. Zitko, and M.R. Peterson	Structure-Lethality Relationships for Phenols, Anilines and Other Aromatic Compounds in Shrimp and Clams	Chemosphere 8(2):53 57 (OECDG Data File)	1979
88755	2-Nitrophenol	Artemia salina	Brine shrimp	Crustaceans	LC50	7 d	l	NR	U	900	μg/L	SW	LAB	16436	Barahona, M.V., and S. Sanchez-Fortun	Comparative Sensitivity of Three Age Classes of Artemia salina Larvae to Several Phenolic Compounds	Bull.Environ.Contam. Toxicol. 56(2):271- 278	1996
95487	2-Methylphenol	Elasmopus pectinicrus	Scud	Crustaceans	LC50	1 d	l	R	U	16,000	μg/L	SW	LAB	5013	Lee, W.Y., and J.A.C. Nicol	Individual and Combined Toxicity of Some Petroleum Aromatics to the Marine Amphipod Elasmopus pectenicrus	Mar.Biol. 48(3):215- 222	1978
95487	2-Methylphenol	Elasmopus pectinicrus	Scud	Crustaceans	LC50	2 d	<u></u> _	R	U	11,800	μg/L	SW	LAB	5013	Lee, W.Y., and J.A.C. Nicol	Individual and Combined Toxicity of Some Petroleum Aromatics to the Marine Amphipod Elasmopus pectenicrus	Mar.Biol. 48(3):215- 222	1978
95487	2-Methylphenol	Crangon septemspinosa	Bay shrimp, Sand shrimp	Crustaceans	LC50	2.458333333 d		R	M	14,200	μg/L	SW	LAB	5810	McLeese, D.W., V. Zitko, and M.R. Peterson	Structure-Lethality Relationships for Phenols, Anilines and Other Aromatic Compounds in Shrimp and Clams	Chemosphere 8(2):53- 57 (OECDG Data File)	1979

Integral Consulting Inc. Page 14 of 23

*Chlorobenzene da	ta presented in Appendix A														_			
						Exposure Duration	Duration Units	Exposure	Chemical		Conc Units		Test	Reference	,			Publication
CAS Number	Chemical Name	Species Scientific Name	Species Common Name	Species Group	Endpoint	(Days)	(Days)	Туре		Concentration			Location	Number	Author	Title	Source	Year
95487	2-Methylphenol	Elasmopus pectinicrus	Scud	Crustaceans	LC50	2	ł d	R	U	10,200	ua/L	SW	LAB	5013	Lee, W.Y., and J.A.C.	Individual and Combined Toxicity of Some Petroleum Aromatics to the Marine Amphipod Elasmopus pectenicrus	Mar.Biol. 48(3):215- 222	1978
95501	1,2-Dichlorobenzene	Palaemonetes pugio	Daggerblade grass shrimp	Crustaceans	LC50	1	l d	S	М	14,300		SW	LAB	875	Curtis, M.W., T.L. Copeland, and C.H. Ward	Acute Toxicity of 12 Industrial Chemicals to Freshwater and Saltwater Organisms	Water Res. 13(2):137	
95501	1,2-Dichlorobenzene	Palaemonetes pugio	Daggerblade grass shrimp	Crustaceans	LC50	2	2 d	S	М	10,300		sw	LAB	875	Curtis, M.W., T.L. Copeland, and C.H. Ward	Acute Toxicity of 12 Industrial Chemicals to Freshwater and Saltwater Organisms	Water Res. 13(2):137	7 <u>.</u> 1979
95501	1,2-Dichlorobenzene	Palaemonetes pugio	Daggerblade grass shrimp	Crustaceans	LC50	4	ł d	S	М	10,000	μg/L	SW	LAB	2965	Curtis, M.W., and C.H. Ward	Aquatic Toxicity of Forty Industrial Chemicals: Testing in Support of Hazardous Substance Spill Prevention Regulation	J.Hydrol. 51:359- 367(Author Communication Used)	1981
95501	1,2-Dichlorobenzene	Americamysis bahia	Opossum shrimp	Crustaceans	LC50	4	1 d	NR	U	1,970	μg/L	SW	LAB	9607	U.S.Environmental Protection Agency	In-Depth Studies on Health and Environmental Impacts of Selected Water Pollutants	U.S.EPA Contract No.68-01-4646, Duluth, MN :9 p.	1978
95501	1,2-Dichlorobenzene	Palaemonetes pugio	Daggerblade grass shrimp	Crustaceans	LC50	4	1 d	S	М	9,400	μg/L	SW	LAB	875	Curtis, M.W., T.L. Copeland, and C.H. Ward	Acute Toxicity of 12 Industrial Chemicals to Freshwater and Saltwater Organisms	Water Res. 13(2):137 141	7. 1979
95501	1,2-Dichlorobenzene	Mercenaria mercenaria	Northern quahog or hard clam	Molluscs	LC50	12	2 d	R	U	100,000	μg/L	SW	LAB	2400	Davis, H.C., and H. Hidu	Effects of Pesticides on Embryonic Development of Clams and Oysters and on Survival and Growth of the Larvae	Fish.Bull. 67(2):393- 404	1969
95578	2-Chlorophenol	Crangon septemspinosa	Bay shrimp, Sand shrimp	Crustaceans	LC50	4	ł d	R	М	5,300	μg/L	sw	LAB	5810	McLeese, D.W., V. Zitko, and M.R. Peterson	Structure-Lethality Relationships for Phenols, Anilines and Other Aromatic Compounds in Shrimp and Clams	Chemosphere 8(2):53 57 (OECDG Data File)	3· 1979
100414	Ethylbenzene	Nitocra spinipes	Harpacticoid copepod	Crustaceans	LC50	1	l d	S	U	16,000	μg/L	sw	LAB	7800	Potera, G.T.	The Effects of Benzene, Toluene and Ethylbenzene on Several Important Members of the Estuarine Ecosystem	Ph.D.Thesis, Lehigh University, Bethlehem, PA :108 p.	1975
100414	Ethylbenzene	Nitocra spinipes	Harpacticoid copepod	Crustaceans	LC50	1	l d	S	U	40,000	μg/L	SW	LAB	7800	Potera, G.T.	The Effects of Benzene, Toluene and Ethylbenzene on Several Important Members of the Estuarine Ecosystem	Ph.D.Thesis, Lehigh University, Bethlehem, PA :108 p.	1975
100414	Ethylbenzene	Palaemonetes pugio	Daggerblade grass shrimp	Crustaceans	LC50	1	l d	S	U	22,100	μg/L	sw	LAB	7800	Potera, G.T.	The Effects of Benzene, Toluene and Ethylbenzene on Several Important Members of the Estuarine Ecosystem	Ph.D.Thesis, Lehigh University, Bethlehem, PA :108 p.	1975
100414	Ethylbenzene	Palaemonetes pugio	Daggerblade grass shrimp	Crustaceans	LC50	1	d	S	U	17,300	μg/L	SW	LAB	7800	Potera, G.T.	The Effects of Benzene, Toluene and Ethylbenzene on Several Important Members of the Estuarine Ecosystem	Ph.D.Thesis, Lehigh University, Bethlehem, PA :108 p.	1975
100414	Ethylbenzene	Palaemonetes pugio	Daggerblade grass shrimp	Crustaceans	LC50	1	l d	S	U	17,300	μg/L	SW	LAB	7800	Potera, G.T.	The Effects of Benzene, Toluene and Ethylbenzene on Several Important Members of the Estuarine Ecosystem	Ph.D.Thesis, Lehigh University, Bethlehem, PA :108 p.	1975
100414	Ethylbenzene	Palaemonetes pugio	Daggerblade grass shrimp	Crustaceans	LC50	1	l d	S	U	14,400	μg/L	SW	LAB	7800	Potera, G.T.	The Effects of Benzene, Toluene and Ethylbenzene on Several Important Members of the Estuarine Ecosystem	Ph.D.Thesis, Lehigh University, Bethlehem, PA :108 p.	1975
100414	Ethylbenzene	Palaemonetes pugio	Daggerblade grass shrimp	Crustaceans	LC50	1		S	U	10,200	μg/L	SW	LAB	7800	Potera, G.T.	The Effects of Benzene, Toluene and Ethylbenzene on Several Important Members of the Estuarine Ecosystem	Ph.D.Thesis, Lehigh University, Bethlehem, PA :108 p.	1975
100414	Ethylbenzene	Americamysis bahia	Opossum shrimp	Crustaceans	LC50	1	d	F	М	5,200	μg/L	sw	LAB	4189	Masten, L.W., R.L. Boeri, and J.D. Walker	Stategies Employed to Determine the Acute Aquatic Toxicity of Ethyl Benzene, a Highly Volatile, Poorly Water-Soluble Chemical	Ecotoxicol.Environ.S af. 27(3):335-348	1994

Integral Consulting Inc. Page 15 of 23

*Chlorobenzene da	ta presented in Appendix A																
						Exposure Durat		Q		Conc		.	D (D 11: "
CAS Number	Chemical Name	Species Scientific Name	Species Common Name	Species Group	Endpoint	Duration Unit (Days) (Day			Concentration		Media Type		Reference Number	Author	Title	Source	Publication Year
C/ (C Trumbo)	CHOINICA I VAINO	Oposios Coloniano Hamo	Cposice Common Name	Cposico Croup	Litapolita	(3,3,5)	-7 71 -	,	Concontration	(F-3· -)	7 71 -			Additor	The Acute Toxicity of Six Monocyclic	Course	
															Aromatic Crude Oil Components to		
100414	Ethylbenzene	Crangon franciscorum	Bay shrimp	Crustaceans	LC50	1 d	S	М	2,200	ua/l	sw	LAB	558	Benville, P.E.Jr., and S. Korn	Striped Bass (Morone saxatilis) and Bay Shrimp (Crago franciscorum)	Calif.Fish Game 63(4):204-209	1977
		orangen nanologoram	Day ommip	0.40.4004.10	2000				2,200	µg/L			555		Day Change Hallocockanny	Ph.D.Thesis, Lehigh	
															The Effects of Benzene, Toluene and	University,	
100414	Ethylbenzene	Palaemonetes pugio	Daggerblade grass shrimp	Crustaceans	LC50	1 d	s	U	14,500	ua/l	SW	LAB	7800	Potera, G.T.	Ethylbenzene on Several Important Members of the Estuarine Ecosystem	Bethlehem, PA :108	1975
		r and and a page	- aggarana grace ammp						11,000	rg/ =					of Cook Inlet Crude Oil and Its Major	Fate and Effects of	1010
														Caldwell, R.S., E.M.	Aromatic Components on Larval	Petroleum	
100414	Ethylbenzene	Cancer magister	Dungeness or edible crab	Crustaceans	LC50	2 d	s	М	40,000	ua/L	SW	LAB	5035	Caldarone, and M.H. Mallon	Stages of the Dungeness Crab, Cancer magister Dana	Hydrocarbons in Marine Ecosystems	1977
	,		, ,							1.3					Stategies Employed to Determine the		
														Master I W. D.I. Beeri	Acute Aquatic Toxicity of Ethyl	Factorical Environ C	
100414	Ethylbenzene	Americamysis bahia	Opossum shrimp	Crustaceans	LC50	2 d	F	М	5,200	μg/L	sw	LAB	4189	and J.D. Walker	Benzene, a Highly Volatile, Poorly Water-Soluble Chemical	Ecotoxicol.Environ.S af. 27(3):335-348	1994
	•									. 0					The Effect of Alaskan Crude Oil and	Washington, Seattle,	
															Selected Hydrocarbon Compounds or Embryonic Development of the Pacfic		
100414	Ethylbenzene	Crassostrea gigas	Pacific oyster	Molluscs	LC50*	2 d	S	U	373,000	μg/L	SW	LAB	8621	Legore, R.S.	Oyster, Crassostrea gigas	Sci.Eng. 35(7):3168	1975
														_	Stategies Employed to Determine the		
														Maston I W P I Roori	Acute Aquatic Toxicity of Ethyl Benzene, a Highly Volatile, Poorly	Ecotoxicol.Environ.S	
100414	Ethylbenzene	Americamysis bahia	Opossum shrimp	Crustaceans	LC50	3 d	F	М	4,000	μg/L	SW	LAB	4189	and J.D. Walker	Water-Soluble Chemical	af. 27(3):335-348	1994
														U.S.Environmental	In-Depth Studies on Health and Environmental Impacts of Selected	U.S.EPA Contract No.68-01-4646,	
100414	Ethylbenzene	Americamysis bahia	Opossum shrimp	Crustaceans	LC50	4 d	NR	U	87,600	μg/L	SW	LAB	9607	Protection Agency	Water Pollutants	Duluth, MN :9 p.	1978
															The Acute Toxicity of Six Monocyclic		
														Benville, P.E.Jr., and S.	Aromatic Crude Oil Components to Striped Bass (Morone saxatilis) and	Calif.Fish Game	
100414	Ethylbenzene	Crangon franciscorum	Bay shrimp	Crustaceans	LC50	4 d	S	М	490	μg/L	SW	LAB	558	Korn	Bay Shrimp (Crago franciscorum)	63(4):204-209	1977
															Stategies Employed to Determine the		
														Masten, L.W., R.L. Boeri,	Acute Aquatic Toxicity of Ethyl Benzene, a Highly Volatile, Poorly	Ecotoxicol.Environ.S	
100414	Ethylbenzene	Americamysis bahia	Opossum shrimp	Crustaceans	LC50	4 d	F	М	2,600	μg/L	SW	LAB	4189	and J.D. Walker	Water-Soluble Chemical	af. 27(3):335-348	1994
														Caldwell. R.S., E.M.	of Cook Inlet Crude Oil and Its Major Aromatic Components on Larval	Fate and Effects of Petroleum	
														Caldarone, and M.H.	Stages of the Dungeness Crab,	Hydrocarbons in	
100414	Ethylbenzene	Cancer magister	Dungeness or edible crab	Crustaceans	LC50	4 d	S	М	13,000	μg/L	SW	LAB	5035	Mallon	Cancer magister Dana	Marine Ecosystems	1977
														Curtis, M.W., T.L.	Acute Toxicity of 12 Industrial		
														Copeland, and C.H.	Chemicals to Freshwater and	Water Res. 13(2):137-	-
106467	1,4-Dichlorobenzene	Palaemonetes pugio	Daggerblade grass shrimp	Crustaceans	LC50	2 d	S	М	129,200	μg/L	SW	LAB	875	Ward	Saltwater Organisms	141	1979
															In-Depth Studies on Health and	U.S.EPA Contract	
														U.S.Environmental	Environmental Impacts of Selected	No.68-01-4646,	
106467	1,4-Dichlorobenzene	Americamysis bahia	Opossum shrimp	Crustaceans	LC50	4 d	NR	U	1,990	μg/L	SW	LAB	9607	Protection Agency	Water Pollutants	Duluth, MN :9 p. J.Hydrol. 51:359-	1978
															Aquatic Toxicity of Forty Industrial Chemicals: Testing in Support of	367(Author	
400407	1.4-Dichlorobenzene	Dala ana anta a munic	Danashlada sasa ahdasa	0	LC50	414	s	М	00.000		CVA	LAD	0005	Curtis, M.W., and C.H.	Hazardous Substance Spill Prevention		4004
106467	1,4-Dichlorobenzene	Palaemonetes pugio	Daggerblade grass shrimp	Crustaceans	LC50	4 0	3	IVI	60,000	μg/L	SW	LAB	2965	Ward	Regulation	Used)	1981
														Curtis, M.W., T.L.	Acute Toxicity of 12 Industrial		
106467	1,4-Dichlorobenzene	Palaemonetes pugio	Daggerblade grass shrimp	Crustaceans	LC50	414	S	М	69,000		SW	LAB	875	Copeland, and C.H. Ward	Chemicals to Freshwater and Saltwater Organisms	Water Res. 13(2):137- 141	1979
100707	1,7 DIGINOLOGIZENE	r alacinorietes pagio	Daggerblade grass smillip	Orasiaceans	2030	4 0	3	IVI	09,000	μg/∟	344	רעט	0/3	rraiu	Carryator Organisms	171	1313
															Structure-Lethality Relationships for	Chemosphere 8(2):53	1
108952	Phenol	Crangon septemspinosa	Bay shrimp, Sand shrimp	Crustaceans	LC50	0.875 d	R	М	7,500	ug/l	SW	LAB	5810	McLeese, D.W., V. Zitko, and M.R. Peterson	Phenols, Anilines and Other Aromatic Compounds in Shrimp and Clams	57 (OECDG Data File)	1979
- 30002			Say Samp, Sand Simily	J. 45.4004115		3.5.00	13	141	7,000	μg/ ⊑		2, ,2	3010		2 2poundo in Ominip and Olamo	,	10.0
														Deiter K.C. O.T. W.	Data - Obstana Di	J.Water	
108952	Phenol	Artemia salina	Brine shrimp	Crustaceans	LC50*	1 d	S	U	160,000	ug/l	SW	LAB	2408	Price, K.S., G.T. Waggy, and R.A. Conway	Brine Shrimp Bioassay and Seawater BOD of Petrochemicals	Pollut.Control Fed. 46(1):63-77	1974
	1		+						.55,500	r3′ -	1					1 -1.7	

Integral Consulting Inc. Page 16 of 23

*Chlorobenzene dat	a presented in Appendix A															
						Exposure Durati		Chemical	Conc	Media	Toot	Reference				Publication
CAS Number	Chemical Name	Species Scientific Name	Species Common Name	Species Group	Endpoint	Duration Unit (Days) (Day			Concentration (µg/L)	Type	Test Location		Author	Title	Source	Year
108952	Phenol	Katelysia opima	Marine bivalve	Molluscs	LC50	1 d	s	U	138,000 μg/L	SW	LAB	9017	Dange, A.D., and V.B. Masurekar	Hydrocarbons to the Estuarine Fish Therapon jarbua (Forsskal) and the Estuarine Clam Katelysia opima (Gmelin)	Proc.Symp.Coastal Aquacult. 3:828-832	1984
400052	Dhand	Delegamentos surie	Degraphic de grape abriran	Crustossos	1.050	14	s			CW	LAD	10053	Total U.S.	The Toxicity and Physiological Effects of Oil and Petroleum Hydrocarbons on Estuarine Grass Shrimp Palaemonetes		1075
108952	Phenol	Palaemonetes pugio Artemia sp.	Daggerblade grass shrimp Brine shrimp	Crustaceans Crustaceans	LC50	1 d	S	U	53,000 μg/L 31,800,000 μg/L	SW	LAB	19953	Espiritu, E.Q., C.R. Janssen, and G. Persoone	pugio (Holthuis) Cyst-Based Toxicity Tests. VII. Evaluation of the 1-h Enzymatic Inhibition Test (Fluotox) with Artemia nauplii	:133 p. Environ.Toxicol.Wate r Qual. 10:25-34	1975 1995
108952	Phenol	Archaeomysis kokuboi	Mysid	Crustaceans	LC50	1 d	s	NR	6,900 μg/L	SW	NR	19779	Kim, J.S., and P. Chin	Acute and Chronic Toxicity of Phenol to Mysid, Archaeomysis kokuboi	Bull.Korean Fish.Soc.(Han'Guk Susan Halchoiji) 28(1):87-97	1995
108952	Phenol	Palaemonetes pugio	Daggerblade grass shrimp	Crustaceans	LC50	1 d	S	М	53,000 μg/L	SW	LAB	420	Tatem, H.E., B.A. Cox, and J.W. Anderson	The Toxicity of Oils and Petroleum Hydrocarbons to Estuarine Crustaceans	Estuar.Coast.Mar.Sci. 6(4):365-373	1978
108952	Phenol	Artemia sp.	Brine shrimp	Crustaceans	LC50	1 d	s	U	99,900,000 μg/L	SW	LAB	16031	Espiritu, E.Q., C.R. Janssen, and G. Persoone	Cyst-Based Toxicity Tests. VII. Evaluation of the 1-h Enzymatic Inhibition Test (Fluotox) with Artemia nauplii	Environ.Toxicol.Wate r Qual. 10:25-34	1995
108952	Phenol	Artemia sp.	Brine shrimp	Crustaceans	LC50	1 d	s	U	52,200,000 μg/L	SW	LAB	16031	Espiritu, E.Q., C.R. Janssen, and G. Persoone	Cyst-Based Toxicity Tests. VII. Evaluation of the 1-h Enzymatic Inhibition Test (Fluotox) with Artemia nauplii	Environ.Toxicol.Wate r Qual. 10:25-34	1995
108952	Phenol	Artemia sp.	Brine shrimp	Crustaceans	LC50	1 d	s	U	50,500,000 μg/L	SW	LAB	16031	Espiritu, E.Q., C.R. Janssen, and G. Persoone	Cyst-Based Toxicity Tests. VII. Evaluation of the 1-h Enzymatic Inhibition Test (Fluotox) with Artemia nauplii	Environ.Toxicol.Wate r Qual. 10:25-34	1995
108952	Phenol	Artemia sp.	Brine shrimp	Crustaceans	LC50	1 d	s	U	34,600,000 μg/L	SW	LAB	16031	Espiritu, E.Q., C.R. Janssen, and G. Persoone	Cyst-Based Toxicity Tests. VII. Evaluation of the 1-h Enzymatic Inhibition Test (Fluotox) with Artemia nauplii	Environ.Toxicol.Wate r Qual. 10:25-34	1995
108952	Phenol	Artemia sp.	Brine shrimp	Crustaceans	LC50	1 d	s	U	105,000,000 μg/L	SW	LAB	16031	Espiritu, E.Q., C.R. Janssen, and G. Persoone	Cyst-Based Toxicity Tests. VII. Evaluation of the 1-h Enzymatic Inhibition Test (Fluotox) with Artemia nauplii	Environ.Toxicol.Wate r Qual. 10:25-34	1995
108952	Phenol	Tetrahymena pyriformis	Ciliate	Invertebrates	LC50	1 d	S	NR	600,000 μg/L	sw	LAB	9812	Roberts, R.O., and S.G. Berk	Development of a Protozoan Chemoattraction Bioassay for Evaluating Toxicity of Aquatic Pollutants	Toxic.Assess. 5:279-292	1990
108952	Phenol	Brachionus plicatilis	Rotifer	Invertebrates	LC50	1 d	s	NR	400,000 μg/L	SW	LAB	16539	Snell, T.W., B.D. Moffat, C. Janssen, and G. Persoone	Acute Toxicity Tests Using Rotifers. III. Effects of Temperature, Strain, and Exposure Time on the Sensitivity of Brachionus plicatilis	Environ.Toxicol.Wate r Qual. 6:63-75	1991
108952	Phenol	Archaeomysis kokuboi	Mysid	Crustaceans	LC50	1 d	NR	NR	3,650 μg/L	SW	NR	19779	Kim, J.S., and P. Chin	Acute and Chronic Toxicity of Phenol to Mysid, Archaeomysis kokuboi	Bull.Korean Fish.Soc.(Han'Guk Susan Halchoiji) 28(1):87-97	1995
108952	Phenol	Archaeomysis kokuboi	Mysid	Crustaceans	LC50	1 d	S	NR	3,510 μg/L	SW	NR	19779	Kim, J.S., and P. Chin	Acute and Chronic Toxicity of Phenol to Mysid, Archaeomysis kokuboi	Bull.Korean Fish.Soc.(Han'Guk Susan Halchoiji) 28(1):87-97	1995
108952	Phenol	Mysida	Opossum shrimp order	Crustaceans	LC50	1 d	S	U	2,000 μg/L	SW	LAB	3416	Luk'yanenko, V.I., S.A. Cherkashin, and P.A. Kandinskiy	Behavior of Juvenile Fish and Mysids in Solutions of Organic Toxicants	Hydrobiol.J. 23(4):65-70	1987
108952	Phenol	Acartia clausi	Calanoid copepod	Crustaceans	LC50	1 d	s	U	32,269 μg/L	SW	LAB	17298	Buttino, I.	Phenol and Ammonia on Egg Production Rates, Fecal Pellet Production and Egg Viability of the Calanoid Copepod	Mar.Biol. 119(4):629-634	1994

Integral Consulting Inc. Page 17 of 23

*Chlorobenzene da	ata presented in Appendix A																	
						Exposure Duration	Duration Units	Evpouro	Chemical		Conc Units		Test	Reference				Publication
CAS Number	Chemical Name	Species Scientific Name	Species Common Name	Species Group	Endpoint	(Days)	(Days)	Type		Concentration			Location	Number		Title	Source	Year
C/ (C TYGINDOI	Chomical Hamo	Openio Coloninio Italiio	Species Comment Name	Openies Creup	Епаропп	(-) - /	(-9-7	71 -	,	Concontration	(F-3· -/	71 -			7 tatiloi	The state of the s	Bull.Korean	+
																	Fish.Soc.(Han'Guk	
																Acute and Chronic Toxicity of Phenol	Susan Halchoiji)	
108952	Phenol	Archaeomysis kokuboi	Mysid	Crustaceans	LC50	1	1 d	S	NR	31,310	μg/L	SW	NR	19779	Kim, J.S., and P. Chin	to Mysid, Archaeomysis kokuboi	28(1):87-97	1995
															D. Rossel, J. Tarradellas	*		
															H. Meyer, H. Saiah, P. Vogel, C. Delisle, and C.	Cyst-Based Ecotoxicological Tests	Environ.Toxicol.Wate	
108952	Phenol	Artemia salina	Brine shrimp	Crustaceans	LC50	1	1 d	NR	U	28,200	lua/I	SW	LAB	17289	Blaise	Using Anostracans: Comparison of Two Species of Streptocephalus	r Qual. 9(4):317-326	1994
100332	1 Honor	/ trema sama	Dillic Silling	Orasiaccaris	2000		10	IVIX		20,200	μg/L		LIND	17203	Dialoc	Two openies of direptocephalas	Bull.Korean	1004
																	Fish.Soc.(Han'Guk	
																Acute and Chronic Toxicity of Phenol	Susan Halchoiji)	
108952	Phenol	Archaeomysis kokuboi	Mysid	Crustaceans	LC50	1	1 d	S	NR	20,770	μg/L	SW	NR	19779	Kim, J.S., and P. Chin	to Mysid, Archaeomysis kokuboi	28(1):87-97	1995
																	Bull.Korean	
																Agusta and Chronic Toyleity of Dhanel	Fish.Soc.(Han'Guk Susan Halchoiji)	
108952	Phenol	Archaeomysis kokuboi	Mysid	Crustaceans	LC50	1	1 d	s	NR	14,870	lua/I	SW	NR	19779	Kim, J.S., and P. Chin	Acute and Chronic Toxicity of Phenol to Mysid, Archaeomysis kokuboi	28(1):87-97	1995
100002	THORIO	7 Horidoshiyolo Kokubol	Myora	Ordolaccario	2000				1111	11,070	μg/L	1	1111	10770	ram, c.c., and r. crim	The Effects of a Simulated Refinery	20(1).07 07	1000
															Buikema, A.L.J., B.R.	Effluent and Its Components on the		
															Niederlehner, and J.	Estuarine Crustacean, Mysidopsis	Arch.Environ.Contam	1
108952	Phenol	Americamysis bahia	Opossum shrimp	Crustaceans	LC50	1	1 d	S	U	14,400	μg/L	SW	LAB	14256	Cairns Jr.	bahia	.Toxicol. 10:231-240	1981
																	Leaflet No.22 (2nd	
															Destruction I.E. and K.W.	The Toxicity of 140 Substances to the	Ed.), Ministry of	
108952	Phenol	Pandalus montagui	Aesop shrimp	Crustaceans	LC50	9	2 d	R	U	175,000	lua/I	SW	LAB	906	Portmann, J.E., and K.W Wilson	/. Brown Shrimp and Other Marine Animals	Agric.Fish.Food, Fish.Lab.Burnham-on	n- 1971
100932	i rierioi	l'andaids montagui	Aesop sillilip	Crustaceans	2030		- u	IX	0	173,000	μg/L	OVV	LAD	300	WIISOII	Hydrocarbons to the Estuarine Fish	1 ISH.Lab.Dullillalli-OH	13/1
																Therapon jarbua (Forsskal) and the		
															Dange, A.D., and V.B.	Estuarine Clam Katelysia opima	Proc.Symp.Coastal	
108952	Phenol	Katelysia opima	Marine bivalve	Molluscs	LC50	2	2 d	S	U	128,000	μg/L	SW	LAB	9017	Masurekar	(Gmelin)	Aquacult. 3:828-832	1984
															D: 1/0 OT W	D : 01 : D: 10 .	J.Water	
108952	Phenol	Artemia salina	Brine shrimp	Crustaceans	LC50*	,	2 d	s	U	56,000	lua/I	SW	LAB	2408	Price, K.S., G.T. Waggy, and R.A. Conway	Brine Shrimp Bioassay and Seawater BOD of Petrochemicals	Pollut.Control Fed. 46(1):63-77	1974
100332	i rierioi	Arterna Salina	Dillie Sillilip	Crustaceans	2000		- u	-	0	30,000	μg/L	OVV	LAD	2400	and N.A. Conway	BOD OF EUGENERICAIS	Leaflet No.22 (2nd	1374
																The Toxicity of 140 Substances to the		
			Green or Europeon shore												Portmann, J.E., and K.W	/. Brown Shrimp and Other Marine	Agric.Fish.Food,	
108952	Phenol	Carcinus maenas	crab	Crustaceans	LC50	2	2 d	R	U	56,000	μg/L	SW	LAB	906	Wilson	Animals	Fish.Lab.Burnham-on	n- 1971
																Cyst-Based Toxicity Tests. VII.		
															Espiritu, E.Q., C.R.	Evaluation of the 1-h Enzymatic	Environ Tovicel Wete	
108952	Phenol	Artemia sp.	Brine shrimp	Crustaceans	LC50	3	2 d	s	U	27,500,000	lua/I	SW	LAB	16031	Janssen, and G. Persoone	Inhibition Test (Fluotox) with Artemia nauplii	Environ.Toxicol.Wate r Qual. 10:25-34	1995
100002	THORIO	/ tremia op.	Dinio orininp	Ordolaccario	2000					21,000,000	μg/L		2,10	10001	1 01000110	Cyst-Based Toxicity Tests. VII.	1 Quai. 10.20 01	1000
															Espiritu, E.Q., C.R.	Evaluation of the 1-h Enzymatic		
															Janssen, and G.	Inhibition Test (Fluotox) with Artemia	Environ.Toxicol.Wate	
108952	Phenol	Artemia sp.	Brine shrimp	Crustaceans	LC50	2	2 d	S	U	50,900,000	μg/L	SW	LAB	16031	Persoone	nauplii	r Qual. 10:25-34	1995
																Cyst-Based Toxicity Tests. VII.		
															Espiritu, E.Q., C.R. Janssen, and G.	Evaluation of the 1-h Enzymatic Inhibition Test (Fluotox) with Artemia	Environ.Toxicol.Wate	
108952	Phenol	Artemia sp.	Brine shrimp	Crustaceans	LC50	2	2 d	s	U	49,400,000	ua/L	SW	LAB	16031	Persoone	nauplii	r Qual. 10:25-34	1995
					1		<u> </u>			10,100,000	rg/=	1				Cyst-Based Toxicity Tests. VII.		+
															Espiritu, E.Q., C.R.	Evaluation of the 1-h Enzymatic		
															Janssen, and G.	Inhibition Test (Fluotox) with Artemia	Environ.Toxicol.Wate	
108952	Phenol	Artemia sp.	Brine shrimp	Crustaceans	LC50		2 d	S	U	38,400,000	μg/L	SW	LAB	16031	Persoone	nauplii	r Qual. 10:25-34	1995
															Fraide FO OD	Cyst-Based Toxicity Tests. VII.		
															Espiritu, E.Q., C.R. Janssen, and G.	Evaluation of the 1-h Enzymatic Inhibition Test (Fluotox) with Artemia	Environ.Toxicol.Wate	_
108952	Phenol	Artemia sp.	Brine shrimp	Crustaceans	LC50	2	2 d	s	U	26,000,000	ua/L	sw	LAB	16031	Persoone	nauplii	r Qual. 10:25-34	1995
			r r				1			-,,	r.ə, -	1	<u> </u>			'	Marine Pollution and	
																Results of Acute Toxicity Tests with	Sea Life, FAO,	
																Marine Organisms, Using a Standard	Rome, Italy / Fishing	
108952	Phenol	Cerastoderma edule	Cockle	Molluscs	LC50	2	2 d	S	U	330,000	μg/L	SW	LAB	9258	Portmann, J.E.	Method	News (Books) Ltd.,	1972
																The E#12-14 Oct 1 1 1 1 1 1 1	-1	
																The Effects of Selected Chemicals and Water Quality on the Marine	Water Res. 18(7):865	,
108952	Phenol	Ophryotrocha diadema	Polychaete	Worms	LC50	5	2 d	s	U	215,000	ua/I	sw	LAB	10890	Parker, J.G.	Polychaete Ophryotrocha diadema	868	1984
	1		,	1			1-			,.00	ry' -	1			,	, , , on cond anddonia		

Integral Consulting Inc. Page 18 of 23

	ata presented in Appendix A					Exposure	Duration				Conc							T
CAS Number	Chamical Nama	Species Scientific Name	Species Common Name	Species Croup	Endnoint	Duration (Days)	Units (Days)	Exposure Type		Concentration	Units (μg/L)		Test Location	Reference Number	Author	Title	Source	Publication Year
CAS Number	Chemical Name	Species Scientific Name	Species Common Name	Species Group	Enapoint	(Days)	(Days)	Туре	Allalysis	Concentration	(μg/L)	Туре	Location	Number	Author	Title	Source Marine Pollution and	
																Results of Acute Toxicity Tests with	Sea Life, FAO,	
109052	Phenol	Crangon arangan	Common shrimp, sand	Cruotococo	LCEO	,	2 4	S		24 500) /I	sw	LAD	9258	Dortmonn I E	Marine Organisms, Using a Standard Method	Rome, Italy / Fishing	
108952	Prierioi	Crangon crangon	shrimp	Crustaceans	LC50	•	2 d	5	U	21,500	μg/L	SVV	LAB	9258	Portmann, J.E.	Metriod	News (Books) Ltd., Leaflet No.22 (2nd	1972
																The Toxicity of 140 Substances to the	Ed.), Ministry of	
109052	Dhonol	Caractadarma adula	Cooklo	Mollugge	LC50	,	2 4	В	U	E00 000) /I	sw	LAB	906	Portmann, J.E., and K.W Wilson	. Brown Shrimp and Other Marine Animals	Agric.Fish.Food, Fish.Lab.Burnham-on	n- 1971
108952	Phenol	Cerastoderma edule	Cockle	Molluscs	LC50	•	2 d	R	U	500,000	μg/L	SVV	LAB	906	Wilson	Cyst-Based Toxicity Tests. VII.	FISH.Lab.Burnham-on	1971
															Espiritu, E.Q., C.R.	Evaluation of the 1-h Enzymatic		
400050	Dharal	A	Daine a shairean	0	1.050	,	2 -1	0		00 000 000		014/	1.40	40004	Janssen, and G.	Inhibition Test (Fluotox) with Artemia	Environ.Toxicol.Wate	
108952	Phenol	Artemia sp.	Brine shrimp	Crustaceans	LC50	4	2 d	S	U	36,000,000	μg/L	SW	LAB	16031	Persoone	nauplii	r Qual. 10:25-34 Bull.Korean	1995
																	Fish.Soc.(Han'Guk	
100050	DI I				1.050				ND	0.400		0147	ND	40770	16. 10. 10.01.	Acute and Chronic Toxicity of Phenol	Susan Halchoiji)	4005
108952	Phenol	Archaeomysis kokuboi	Mysid	Crustaceans	LC50		2 d	S	NR	3,480	μg/L	SW	NR	19779	Kim, J.S., and P. Chin	to Mysid, Archaeomysis kokuboi	28(1):87-97 Bull.Korean	1995
																	Fish.Soc.(Han'Guk	
	D											0111			10 10 10 11	Acute and Chronic Toxicity of Phenol	Susan Halchoiji)	
108952	Phenol	Archaeomysis kokuboi	Mysid	Crustaceans	LC50	2	2 d	S	NR	6,810	μg/L	SW	NR	19779	Kim, J.S., and P. Chin	to Mysid, Archaeomysis kokuboi	28(1):87-97 Bull.Korean	1995
																	Fish.Soc.(Han'Guk	
								_								Acute and Chronic Toxicity of Phenol	Susan Halchoiji)	
108952	Phenol	Archaeomysis kokuboi	Mysid	Crustaceans	LC50		2 d	S	NR	1,450	μg/L	SW	NR	19779	Kim, J.S., and P. Chin	to Mysid, Archaeomysis kokuboi	28(1):87-97	1995
																	Bull.Korean Fish.Soc.(Han'Guk	
																Acute and Chronic Toxicity of Phenol	Susan Halchoiji)	
108952	Phenol	Archaeomysis kokuboi	Mysid	Crustaceans	LC50		2 d	S	NR	800	μg/L	SW	NR	19779	Kim, J.S., and P. Chin	to Mysid, Archaeomysis kokuboi	28(1):87-97	1995
																	Bull.Korean Fish.Soc.(Han'Guk	
																Acute and Chronic Toxicity of Phenol	Susan Halchoiji)	
108952	Phenol	Archaeomysis kokuboi	Mysid	Crustaceans	LC50	2	2 d	NR	NR	19,470	μg/L	SW	NR	19779	Kim, J.S., and P. Chin	to Mysid, Archaeomysis kokuboi	28(1):87-97	1995
																The Toxicity of 140 Substances to the	Leaflet No.22 (2nd Ed.), Ministry of	
			Common shrimp, sand												Portmann, J.E., and K.W	Brown Shrimp and Other Marine	Agric.Fish.Food,	
108952	Phenol	Crangon crangon	shrimp	Crustaceans	LC50	2	2 d	R	U	23,500	μg/L	SW	LAB	906	Wilson	Animals	Fish.Lab.Burnham-on	n- 1971
																Toxicity of Phenol on Macrobrachium	Bull.Environ.Contam.	
																rosenbergii (de Man) Eggs, Larvae,	Toxicol. 58(3):469-	
108952	Phenol	Macrobrachium rosenbergii	Giant river prawn	Crustaceans	LC50	2	2 d	F	M	19,480	μg/L	SW	LAB	18007	Law, A.T., and M.E. Yeo	and Post-Larvae	474	1997
																Toxicity of Phenol on Macrobrachium	Bull.Environ.Contam.	
																rosenbergii (de Man) Eggs, Larvae,	Toxicol. 58(3):469-	
108952	Phenol	Macrobrachium rosenbergii	Giant river prawn	Crustaceans	LC50	2	2 d	F	M	16,460	μg/L	SW	LAB	18007	Law, A.T., and M.E. Yeo	and Post-Larvae	474	1997
																	Bull.Korean Fish.Soc.(Han'Guk	
																Acute and Chronic Toxicity of Phenol	Susan Halchoiji)	
108952	Phenol	Archaeomysis kokuboi	Mysid	Crustaceans	LC50		2 d	S	NR	13,650	μg/L	SW	NR	19779	Kim, J.S., and P. Chin	to Mysid, Archaeomysis kokuboi	28(1):87-97	1995
															Buikema, A.L.J., B.R.	The Effects of a Simulated Refinery Effluent and Its Components on the		
															Niederlehner, and J.	Estuarine Crustacean, Mysidopsis	Arch.Environ.Contam	1
108952	Phenol	Americamysis bahia	Opossum shrimp	Crustaceans	LC50		2 d	S	U	12,800	μg/L	SW	LAB	14256	Cairns Jr.	bahia	.Toxicol. 10:231-240	1981
																Toxicity of Phenol on Macrobrachium	Bull.Environ.Contam.	
																rosenbergii (de Man) Eggs, Larvae,	Toxicol. 58(3):469-	
108952	Phenol	Macrobrachium rosenbergii	Giant river prawn	Crustaceans	LC50	2	2 d	F	M	11,830	μg/L	SW	LAB	18007	Law, A.T., and M.E. Yeo	and Post-Larvae	474	1997
																The Toxicity and Physiological Effects	Ph.D.Thesis, Texas	
																of Oil and Petroleum Hydrocarbons on Estuarine Grass Shrimp Palaemonete:	A&M University, College Station, TX	
108952	Phenol	Palaemonetes pugio	Daggerblade grass shrimp	Crustaceans	LC50	2	2 d	S	U	11,000	μg/L	SW	LAB	19953	Tatem, H.E.	pugio (Holthuis)	:133 p.	1975
																The Toyleiby of Oils and D		
															Tatem, H.E., B.A. Cox,	The Toxicity of Oils and Petroleum Hydrocarbons to Estuarine	Estuar.Coast.Mar.Sci.	i.
108952	Phenol	Palaemonetes pugio	Daggerblade grass shrimp	Crustaceans	LC50		2 d	S	M	11,000	μg/L	SW	LAB	420	and J.W. Anderson	Crustaceans	6(4):365-373	1978

Integral Consulting Inc. Page 19 of 23

*Chlorobenzene da	nta presented in Appendix A														_		_	
						Exposure Duration	Duration Units	Exposure	Chemical		Conc Units	Media	Test	Reference	,			Publication
CAS Number	Chemical Name	Species Scientific Name	Species Common Name	Species Group	Endpoint	(Days)	(Days)	Туре		Concentration	(μg/L)		Location	Number	Author	Title	Source	Year
																The Toxicity of Four Oils to Palaemonetes pugio (Holthuis) in		
108952	Phenol	Palaemonetes pugio	Daggerblade grass shrimp	Crustaceans	LC50*	2	2 d	NR	U	20,000	μg/L	SW	LAB	9002	Tatem, H.E., and J.W. Anderson	Relation to Uptake and Retention of Specific Petroleum Hydrocarbons	Am.Zool. 13(4):1307- 1308	1973
															Dange, A.D., and V.B.	Hydrocarbons to the Estuarine Fish Therapon jarbua (Forsskal) and the Estuarine Clam Katelysia opima	Proc.Symp.Coastal	
108952	Phenol	Katelysia opima	Marine bivalve	Molluscs	LC50	3	3 d	S	U	122,000	μg/L	SW	LAB	9017	Masurekar	(Gmelin)	Aquacult. 3:828-832	1984
108952	Phenol	Archaeomysis kokuboi	Mysid	Crustaceans	LC50	5	R d	S	NR	7,880	ug/l	SW	NR	19779	Kim, J.S., and P. Chin	Acute and Chronic Toxicity of Phenol to Mysid, Archaeomysis kokuboi	Bull.Korean Fish.Soc.(Han'Guk Susan Halchoiji) 28(1):87-97	1995
.00002	. Herrer	7 ii o naceniye e nenaze.	mye.u	- C. G.	2000		,,,,,			.,,555	µg/L	0		107.70	, 6.6., 6.1.	io myora, r wondoomyoro nondoo.	Bull.Korean Fish.Soc.(Han'Guk	1000
108952	Phenol	Archaeomysis kokuboi	Mysid	Crustaceans	LC50	3	3 d	S	NR	6,020	μg/L	SW	NR	19779	Kim, J.S., and P. Chin	Acute and Chronic Toxicity of Phenol to Mysid, Archaeomysis kokuboi	Susan Halchoiji) 28(1):87-97	1995
																Acute and Chronic Toxicity of Phenol	Bull.Korean Fish.Soc.(Han'Guk Susan Halchoiji)	
108952	Phenol	Archaeomysis kokuboi	Mysid	Crustaceans	LC50	3	d d	S	NR	1,350	μg/L	SW	NR	19779	Kim, J.S., and P. Chin	to Mysid, Archaeomysis kokuboi	28(1):87-97 Bull.Korean	1995
																Acute and Chronic Toxicity of Phenol	Fish.Soc.(Han'Guk Susan Halchoiji)	
108952	Phenol	Archaeomysis kokuboi	Mysid	Crustaceans	LC50	3	d d	S	NR	970	μg/L	SW	NR	19779	Kim, J.S., and P. Chin	to Mysid, Archaeomysis kokuboi	28(1):87-97 Bull.Korean	1995
400050	Discool	A - ch ch - ch - ch - ch	NA:-I	0	1.050	,) -I		ND	400		OW	ND	40770	Kina I C. and D. Ohin	Acute and Chronic Toxicity of Phenol	Fish.Soc.(Han'Guk Susan Halchoiji)	4005
108952	Phenol	Archaeomysis kokuboi	Mysid	Crustaceans	LC50		s a	S	NR	490	μg/L	SW	NR	19779	Kim, J.S., and P. Chin	to Mysid, Archaeomysis kokuboi	28(1):87-97 Bull.Korean	1995
108952	Phenol	Archaeomysis kokuboi	Mysid	Crustaceans	LC50	3	3 d	S	NR	2,240	μg/L	SW	NR	19779	Kim, J.S., and P. Chin	Acute and Chronic Toxicity of Phenol to Mysid, Archaeomysis kokuboi	Fish.Soc.(Han'Guk Susan Halchoiji) 28(1):87-97	1995
															Oksama, M., and R.	The Toxicity of Phenol to Phoxinus phoxinus, Gammarus duebeni, and	Ann.Zool.Fenn.	
108952	Phenol	Gammarus duebeni	Scud	Crustaceans	LC50	4	d	F	М	183,200	μg/L	SW	LAB	5285	Kristoffersson	Mesidotea entomon in Brackish Water	16(3):209-216	1979
100050	Di i				1.050			_		470.000		0.44		5005	Oksama, M., and R.	The Toxicity of Phenol to Phoxinus phoxinus, Gammarus duebeni, and	Ann.Zool.Fenn.	4070
108952	Phenol	Saduria entomon	Aquatic sowbug	Crustaceans	LC50		d	F	М	176,800	μg/L	SW	LAB	5285	Kristoffersson	Mesidotea entomon in Brackish Water Hydrocarbons to the Estuarine Fish	16(3):209-216	1979
	<u>.</u>											0.44			Dange, A.D., and V.B.	Therapon jarbua (Forsskal) and the Estuarine Clam Katelysia opima	Proc.Symp.Coastal	
108952	Phenol	Katelysia opima	Marine bivalve	Molluscs	LC50		l d	S	U	117,000	μg/L	SW	LAB	9017	Masurekar	(Gmelin)	Aquacult. 3:828-832	1984
108952	Phenol	Saduria entomon	Aquatic sowbug	Crustaceans	LC50	2	l d	F	М	186,200	μg/L	sw	LAB	5285	Oksama, M., and R. Kristoffersson	The Toxicity of Phenol to Phoxinus phoxinus, Gammarus duebeni, and Mesidotea entomon in Brackish Water	Ann.Zool.Fenn. 16(3):209-216	1979
																The Toxicity of Phenol to Phoxinus		
108952	Phenol	Gammarus duebeni	Scud	Crustaceans	LC50	2	ł d	F	М	89,500	μg/L	SW	LAB	5285	Oksama, M., and R. Kristoffersson	phoxinus, Gammarus duebeni, and Mesidotea entomon in Brackish Water	Ann.Zool.Fenn. 16(3):209-216	1979
108952	Phenol	Ampelisca abdita	Amphipod	Crustaceans	LC50	2	l d	R	U	66,500	μg/L	sw	LAB	14592	Redmond, M.S., and K. Scott	J. Acute Toxicity Tests with Phenol	U.S.EPA, Narragansett, RI:3	1987
																The Effect of a No. 2 Fuel Oil and a South Louisiana Crude Oil on the Behavior of the Soft Shell Clam, Mya	Bull.Environ.Contam. Toxicol. 16(6):724-	
108952	Phenol	Mya arenaria	Sand gaper, soft shell clam	Molluscs	LC50	4	d	S	U	53,500	μg/L	SW	LAB	6057	Stainken, D.M.	arenaria L.	729	1976
100050					1055							0	1.45	00		The Effect of a No. 2 Fuel Oil and a South Louisiana Crude Oil on the Behavior of the Soft Shell Clam, Mya	Bull.Environ.Contam. Toxicol. 16(6):724-	
108952	Phenol	Mya arenaria	Sand gaper, soft shell clam	Molluscs	LC50		l d	S	U	565,000	μg/L	SW	LAB	6057	Stainken, D.M.	arenaria L.	729	1976

Integral Consulting Inc. Page 20 of 23

*Chlorobenzene da	ita presented in Appendix A							1	,						1			
						Exposure Duration	Duration Units	Exposure	Chemical		Conc Units	Media	Test	Reference				Publication
CAS Number	Chemical Name	Species Scientific Name	Species Common Name	Species Group	Endpoint	(Days)	(Days)	Туре		Concentration	(μg/L)		Location	Number	Author	Title	Source	Year
																The Effect of a No. 2 Fuel Oil and a South Louisiana Crude Oil on the Behavior of the Soft Shell Clam, Mya	Bull.Environ.Contam. Toxicol. 16(6):724-	
108952	Phenol	Mya arenaria	Sand gaper, soft shell clam	Molluscs	LC50	4	d	S	U	365,000	μg/L	SW	LAB	6057	Stainken, D.M.	arenaria L.	729	1976
108952	Phenol	Archaeomysis kokuboi	Mysid	Crustaceans	LC50	4	d	S	NR	1,490	μg/L	SW	NR	19779	Kim, J.S., and P. Chin	Acute and Chronic Toxicity of Phenol to Mysid, Archaeomysis kokuboi	Bull.Korean Fish.Soc.(Han'Guk Susan Halchoiji) 28(1):87-97	1995
108952	Phenol	Panopeus herbstii	Common mud crab	Crustaceans	LC50	4	d	R	U	52,800	μg/L	SW	LAB	12942	Key, P.B., and G.I. Scott	Lethal and Sublethal Effects of Chlorine, Phenol, and Chlorine-Phenol Mixtures on the Mud Crab, Panopeus herbstii	Environ.Health Perspect. 69:307-312	1986
108952	Phenol	Palaemonetes pugio	Daggerblade grass shrimp	Crustaceans	LC50	4	d	S	U	5,800	μα/L	sw	LAB	19953	Tatem, H.E.	The Toxicity and Physiological Effects of Oil and Petroleum Hydrocarbons on Estuarine Grass Shrimp Palaemonetes pugio (Holthuis)	Ph.D.Thesis, Texas A&M University, College Station, TX :133 p.	1975
																Acute and Chronic Toxicity of Phenol	Bull.Korean Fish.Soc.(Han'Guk Susan Halchoiji)	
108952	Phenol	Archaeomysis kokuboi	Mysid	Crustaceans	LC50	4	d	S	NR	4,530	μg/L	SW	NR	19779	Kim, J.S., and P. Chin	to Mysid, Archaeomysis kokuboi	28(1):87-97 Bull.Korean Fish.Soc.(Han'Guk	1995
108952	Phenol	Archaeomysis kokuboi	Mysid	Crustaceans	LC50	4	d	S	NR	2,710	μg/L	SW	NR	19779	Kim, J.S., and P. Chin	Acute and Chronic Toxicity of Phenol to Mysid, Archaeomysis kokuboi	Susan Halchoiji) 28(1):87-97	1995
108952	Phenol	Archaeomysis kokuboi	Mysid	Crustaceans	LC50	4	d	S	NR	710	μg/L	sw	NR	19779	Kim, J.S., and P. Chin	Acute and Chronic Toxicity of Phenol to Mysid, Archaeomysis kokuboi	Bull.Korean Fish.Soc.(Han'Guk Susan Halchoiji) 28(1):87-97	1995
108952	Phenol	Archaeomysis kokuboi	Mysid	Crustaceans	LC50	4	ł d	s	NR	560	μg/L	SW	NR	19779	Kim, J.S., and P. Chin	Acute and Chronic Toxicity of Phenol to Mysid, Archaeomysis kokuboi	Bull.Korean Fish.Soc.(Han'Guk Susan Halchoiji) 28(1):87-97	1995
108952	Phenol	Archaeomysis kokuboi	Mysid	Crustaceans	LC50	4	d	S	NR		μg/L	SW	NR	19779	Kim, J.S., and P. Chin	Acute and Chronic Toxicity of Phenol to Mysid, Archaeomysis kokuboi	Bull.Korean Fish.Soc.(Han'Guk Susan Halchoiji) 28(1):87-97	1995
															Tatem, H.E., B.A. Cox,	The Toxicity of Oils and Petroleum Hydrocarbons to Estuarine	Estuar.Coast.Mar.Sci.	
108952	Phenol	Palaemonetes pugio	Daggerblade grass shrimp	Crustaceans	LC50	4	d	S	M	5,800	μg/L	SW	LAB	420	and J.W. Anderson Buikema, A.L.J., B.R.	Crustaceans The Effects of a Simulated Refinery Effluent and Its Components on the	6(4):365-373	1978
108952	Phenol	Americamysis bahia	Opossum shrimp	Crustaceans	LC50	4	d	S	U	12,500	μg/L	SW	LAB	14256	Niederlehner, and J. Cairns Jr.	Estuarine Crustacean, Mysidopsis bahia The Effect of a No. 2 Fuel Oil and a	Arch.Environ.Contam .Toxicol. 10:231-240	
108952	Phenol	Mya arenaria	Sand gaper, soft shell clam	Molluscs	LC50	7	'd	S	U	53,500	μg/L	sw	LAB	6057	Stainken, D.M.	South Louisiana Crude Oil on the Behavior of the Soft Shell Clam, Mya arenaria L.	Bull.Environ.Contam. Toxicol. 16(6):724- 729	1976
108952	Phenol	Mya arenaria	Sand gaper, soft shell clam	Molluscs	LC50	7	'd	S	U	450,000	μg/L	sw	LAB	6057	Stainken, D.M.	The Effect of a No. 2 Fuel Oil and a South Louisiana Crude Oil on the Behavior of the Soft Shell Clam, Mya arenaria L.	Bull.Environ.Contam. Toxicol. 16(6):724- 729	1976
108952	Phenol	Mercenaria mercenaria	Northern quahog or hard	Molluscs	LC50	12) d	R	U	55,000		SW	LAB	2400	Davis, H.C., and H. Hidu	Effects of Pesticides on Embryonic Development of Clams and Oysters and on Survival and Growth of the Larvae	Fish.Bull. 67(2):393- 404	1969
100302	FIIGHUI	Mercenana mercenana	ola III	เพิ่มเมือนจ	LCOU		.ju	I.	U	55,000	μg/L	300	LAD	<u> </u>	Oksama, M., and R.	The Toxicity of Phenol to Phoxinus phoxinus, Gammarus duebeni, and	Ann.Zool.Fenn.	1909
108952	Phenol	Saduria entomon	Aquatic sowbug	Crustaceans	LC50	14	d	F	М	100,500	μg/L	SW	LAB	5285	Kristoffersson			1979
108952	Phenol	Saduria entomon	Aquatic sowbug	Crustaceans	LC50	14	ł d	F	M	85,800	μg/L	SW	LAB	5285	Oksama, M., and R. Kristoffersson	The Toxicity of Phenol to Phoxinus phoxinus, Gammarus duebeni, and Mesidotea entomon in Brackish Water	Ann.Zool.Fenn. 16(3):209-216	1979

Integral Consulting Inc. Page 21 of 23

*Chlorobenzene da	ta presented in Appendix A	-																
						Exposure Duration	Duration Units	Evnosure	Chemical		Conc	Media	Test	Reference				Publication
CAS Number	Chemical Name	Species Scientific Name	Species Common Name	Species Group	Endpoint	(Days)	(Days)	Туре		Concentration			Location	Number	Author	Title	Source	Year
																The Toxicity of Phenol to Phoxinus		
108952	Phenol	Gammarus duebeni	Scud	Crustaceans	LC50	21	d	F	M	41,000	μg/L	sw	LAB	5285	Oksama, M., and R. Kristoffersson	phoxinus, Gammarus duebeni, and Mesidotea entomon in Brackish Water	Ann.Zool.Fenn. 16(3):209-216	1979
400050					1.050	24		F		00.500		0144		5005	Oksama, M., and R.	The Toxicity of Phenol to Phoxinus phoxinus, Gammarus duebeni, and	Ann.Zool.Fenn.	1070
108952	Phenol	Gammarus duebeni	Scud	Crustaceans	LC50	21	a	F	M	32,500	μg/L	SW	LAB	5285	Kristoffersson	Mesidotea entomon in Brackish Water	16(3):209-216	1979
117817	1,2-Benzenedicarboxylic acid, bis(2- Ethylhexyl)ester	Ampelisca abdita	Amphipod	Crustaceans	LC50	4	d	R	М	1,000	μg/L	SW	LAB	17582	Ho, K.T., R.A. McKinney, A. Kuhn, M.C. Pelletier, and R.M. Burgess	Identification of Acute Toxicants in New Bedford Harbor Sediments	Environ.Toxicol.Che m. 16(3):551-558	1997
	1,2-Benzenedicarboxylic acid, bis(2-														Ho, K.T., R.A. McKinney, A. Kuhn, M.C. Pelletier,	Identification of Acute Toxicants in	Environ.Toxicol.Che	
117817	Ethylhexyl)ester	Americamysis bahia	Opossum shrimp	Crustaceans	LC50	4	d	R	М	1,000	μg/L	SW	LAB	17582	and R.M. Burgess	New Bedford Harbor Sediments and Pesticide Formulations Against	m. 16(3):551-558 8(11/12):843-851	1997
447047	1,2-Benzenedicarboxylic acid, bis(2-	Nito era aninina	Homosticaid cononod	Crustoscopo	LC50	4	ما م		U	200,000	-/	SW	LAB	E40E	Linden, E., B.E. Bengtsson, O. Svanberg,	Two Brackish Water Organisms, the Bleak (Alburnus alburnus) and the	(Author Communication	4070
117817	Ethylhexyl)ester 1,2-Benzenedicarboxylic	Nitocra spinipes	Harpacticoid copepod	Crustaceans	LC50	4	<u>a</u>	S	0	300,000	μg/L	SVV	LAB	5185	and G. Sundstrom	Harpacticoid Nitocra spinipes	Used) (OECDG Data	1979
117817	acid, bis(2- Ethylhexyl)ester	Nitocra spinipes	Harpacticoid copepod	Crustaceans	LC50	4	d	S	U	1,000,000	μg/L	SW	LAB	10905	Bengtsson, B.E., and M. Tarkpea	The Acute Aquatic Toxicity of Some Substances Carried by Ships	Mar.Pollut.Bull. 14(6):213-214	1983
120821	1.2.4-Trichlorobenzene	Acartia tonsa	Calanoid copepod	Crustaceans	LC50	4	d	s	U	2,100		SW	LAB	14563	Horne, J.D., M.A. Swirsky, T.A. Hollister, B.R. Oblad, and J.H. Kennedy	5Aquatic Toxicity Studies of Five Priority Pollutants	Report, EPA Contract No.68-01-6201, NUS Corp., Houston, TX :196 p.	
120021	1,2,7*1110110100001120110	Acatta torisa	Саганов сорерос	Ciustaceans	2030	7	<u>u</u>	3		2,100	ду/ш	OVV	LAB	14303	Clark, J.R., J.M. Patrick Jr., J.C. Moore, and E.M.	Toxicities of Six Organic Chemicals to Grass Shrimp (Palaemonetes pugio)	Arch.Environ.Contam	
120821	1,2,4-Trichlorobenzene	Branchiostoma caribaeum	Caribbean lancelet	Miscellaneous	LC50	4	d	F	U	5,750	μg/L	SW	LAB	2484	Lores	caribaeum)	407	1987
120821	1,2,4-Trichlorobenzene	Neanthes arenaceodentata	Polychaete worm	Worms	LC50	4	d	s	U	4,700	μg/L	sw	LAB	14563	Horne, J.D., M.A. Swirsky, T.A. Hollister, B.R. Oblad, and J.H. Kennedy	5Aquatic Toxicity Studies of Five Priority Pollutants	Report, EPA Contract No.68-01-6201, NUS Corp., Houston, TX :196 p.	
											. 0				Horne, J.D., M.A. Swirsky, T.A. Hollister, B.R. Oblad. and J.H.	5Aquatic Toxicity Studies of Five	Report, EPA Contract No.68-01-6201, NUS Corp., Houston, TX	
120821	1,2,4-Trichlorobenzene	Crangon septemspinosa	Bay shrimp, Sand shrimp	Crustaceans	LC50	4	d	S	U	90	μg/L	SW	LAB	14563	Kennedy	Priority Pollutants	:196 p.	1983
120821	1.2.4-Trichlorobenzene	Leptosynapta inhaerens	Sea cucumber	Invertebrates	LC50	4	d	F	М	2,400	ua/l	sw	LAB	7410	Tagatz, M.E., and R.S. Stanley	Sensitivity Comparisons of Estuarine Benthic Animals Exposed to Toxicants in Single Species Acute Tests and Community Tests	EPA 600/X-87/167, U.S.EPA, Gulf Breeze, FL :16 p.	1987
120021	1,2,4 1110111010501120110	Есргозупарта ппастопо	oca cacamber	invertebrates	2000	7	<u>u</u>		IVI	2,400	μg/L	Ovv	LAD	7410	Ctarriey	Sensitivity Comparisons of Estuarine	EPA 600/X-87/167,	1307
120821	1,2,4-Trichlorobenzene	Corophium acherusicum	Scud	Crustaceans	LC50	4	d	F	М	1,100	μg/L	SW	LAB	7410	Tagatz, M.E., and R.S. Stanley	in Single Species Acute Tests and Community Tests	U.S.EPA, Gulf Breeze, FL :16 p.	1987
120821	1.2.4-Trichlorobenzene	Armandia maculata	Polychaete or Opheliid worm	Worms	LC50	4	d	F	М	930	μg/L	SW	LAB	7410	Tagatz, M.E., and R.S. Stanley	Sensitivity Comparisons of Estuarine Benthic Animals Exposed to Toxicants in Single Species Acute Tests and Community Tests	EPA 600/X-87/167, U.S.EPA, Gulf Breeze, FL :16 p.	1987
120021	1,2,7 111011010000120110	7 amanda madulata	1 Systacte of Opticina Wolff	TVOITIO	2000	4	<u> </u>	1	191	930	μу/∟	CVV	באט	1410	Horne, J.D., M.A. Swirsky, T.A. Hollister, B.R. Oblad, and J.H.	5Aquatic Toxicity Studies of Five	Report, EPA Contract No.68-01-6201, NUS	t
120821	1,2,4-Trichlorobenzene	Palaemonetes pugio	Daggerblade grass shrimp	Crustaceans	LC50	4	d	S	U	900	μg/L	SW	LAB	14563	Kennedy	Priority Pollutants Sensitivity Comparisons of Estuarine	Corp., Houston, TX :196 p.	1983
120821	1,2,4-Trichlorobenzene	Laevicardium mortoni	Morton's egg cockle	Molluscs	LC50	4	d	F	М	890	μg/L	SW	LAB	7410	Tagatz, M.E., and R.S. Stanley		EPA 600/X-87/167, U.S.EPA, Gulf Breeze, FL :16 p.	1987
	1,2,1 11011010001120110	ESTIMATE HOLDS			2000		<u>~</u>	'	1.01		μg/ L	244	2.0	. 110	Clark, J.R., J.M. Patrick Jr., J.C. Moore, and E.M.	Toxicities of Six Organic Chemicals to Grass Shrimp (Palaemonetes pugio)	Arch.Environ.Contam .Toxicol. 16(4):401-	
120821	1,2,4-Trichlorobenzene	Palaemonetes pugio	Daggerblade grass shrimp	Crustaceans	LC50	4	d	F	U	540	μg/L	SW	LAB	2484	Lores	caribaeum)	407	1987

Integral Consulting Inc. Page 22 of 23

CAS Number	Chemical Name	Species Scientific Name	Species Common Name	Species Group	Endpoint	Exposure Duration (Days)	Duration Units (Days)	Exposure Type	Chemical Analysis	Concentration		Media	Test Location	Reference Number	Author	Title	Source	Publication Year
120821	1,2,4-Trichlorobenzene	Gammarus annulatus	Scud	Crustaceans	LC50		4 d	S	U		μg/L		LAB	14563	Horne, J.D., M.A. Swirsky, T.A. Hollister, B.R. Oblad, and J.H. Kennedy	5Aquatic Toxicity Studies of Five Priority Pollutants	Report, EPA Contract No.68-01-6201, NUS Corp., Houston, TX :196 p.	t 1983
120821	1,2,4-Trichlorobenzene	Americamysis bahia	Opossum shrimp	Crustaceans	LC50		4 d	NR	U	450) μg/L	SW	LAB	9607	U.S.Environmental Protection Agency	In-Depth Studies on Health and Environmental Impacts of Selected Water Pollutants	U.S.EPA Contract No.68-01-4646, Duluth, MN :9 p.	1978
120821	1,2,4-Trichlorobenzene	Nitocra spinipes	Harpacticoid copepod	Crustaceans	LC50		4 d	S	U	2,600) μg/L	sw	LAB	10905	Bengtsson, B.E., and M. Tarkpea	The Acute Aquatic Toxicity of Some Substances Carried by Ships	Mar.Pollut.Bull. 14(6):213-214	1983
218019	Chrysene	Artemia salina	Brine shrimp	Crustaceans	LC50	0.12	5 d	S	U	3,000) μg/L	sw	LAB	63236	Kagan, J., E.D. Kagan, I.A. Kagan, and P.A. Kagan	Do Polycyclic Aromatic Hydrocarbons, Acting as Photosensitizers, Participate in the Toxic Effects of Acid Rain?	R.G.Zika (Eds.), Photochemistry of Environmental Aquatic Systems,	1987
218019	Chrysene	Neanthes arenaceodentata	Polychaete worm	Worms	LC50		4 d	S	M	1,000) μg/L	sw	LAB	5053	Rossi, S.S., and J.M. Neff	Toxicity of Polynuclear Aromatic Hydrocarbons to the Polychaete Neanthes arenaceodentata	Mar.Pollut.Bull. 9(8):220-223	1978
541731	1,3-Dichlorobenzene	Americamysis bahia	Opossum shrimp	Crustaceans	LC50		4 d	NR	U	2,850) μg/L	sw	LAB	9607	U.S.Environmental Protection Agency	In-Depth Studies on Health and Environmental Impacts of Selected Water Pollutants	U.S.EPA Contract No.68-01-4646, Duluth, MN :9 p.	1978
542756	1,3-Dichloro-1-propene	Americamysis bahia	Opossum shrimp	Crustaceans	LC50		4 d	NR	U	790	μg/L	SW	LAB	9607	U.S.Environmental Protection Agency	In-Depth Studies on Health and Environmental Impacts of Selected Water Pollutants	U.S.EPA Contract No.68-01-4646, Duluth, MN :9 p.	1978

Integral Consulting Inc. Page 23 of 23

APPENDIX C

HAZARD QUOTIENT AND
HAZARD INDEX CALCULATION
BASED ON GROUNDWATER DATA
FROM SHORELINE MONITORING
WELLS

						Well ID	MW-01	MW-01	MW-01	MW-01	MW-01A	MW-01A	MW-01A	MW-01A	MW-02	MW-02	MW-02
		SCV ^b	# of														
Parameter	CAS	(µg/L)	Detections	Mean HQ	Max HQ	Date	11/5/2008	10/13/2011	2/21/2012	7/23/2012	11/6/2008	10/13/2011	2/21/2012	7/23/2012	11/12/2008	10/6/2011	2/22/2012
TCL VOCs (µg/L)																	
Benzene	71-43-2	5003	59	0.03	0.3												0.00007
Bromoform	75-25-2	2546	0														
Chloroethane	75-00-3	NA	13														
Chloroform	67-66-3	NA	47								NA	NA	NA	NA	NA		
cis-1,3-Dichloropropene	10061-01-5	NA	0														
Ethylbenzene	100-41-4	1238	50	0.1	2												
Methylene chloride	75-09-2	16666	16	0.0005	0.005												
trans-1,3-Dichloropropene	10061-02-6	NA	0														
Trichlorofluoromethane	75-69-4	NA	2														
1,2-Dichloroethane	107-06-2	NA	48														
1,1,2,2-Tetrachloroethane	79-34-5	NA	11														
Tetrachloroethene	127-18-4	NA	36									NA	NA	NA	NA	NA	NA
Toluene	108-88-3	NA	50														
1,1,2-Trichloroethane	79-00-5	NA	21														
Trichloroethene	79-01-6	NA	67								NA	NA	NA	NA	NA	NA	NA
Vinyl Chloride	75-01-4	NA	21														
Xylenes (total)	1330-20-7	NA	47														
TCL SVOCs (µg/L)																	
1,2,4-Trichlorobenzene	120-82-1	109	20	0.3	2												
1,2-Dichlorobenzene	95-50-1	1182	35	0.3	0.7												
1,3-Dichlorobenzene	541-73-1	290	7	0.05	0.7												
	106-46-7	3212	46	0.01	0.07											0.003	
1,4-Dichlorobenzene 2,4,6-Trichlorophenol	88-06-2	309	1	0.003	0.003											0.003	
•	51-28-5	2896	0	0.003	0.003												
2,4-Dinitrophenol	95-57-8	530	14	0.00	1												
2-Chlorophenol	95-57-8 95-48-7	1286	9	0.08													
2-Methylphenol			_	0.1	2												
2-Nitrophenol	88-75-5	554	5	0.6	2												
4-Chloro-3-methylphenol	59-50-7	NA	0														
Aniline	62-53-3	NA	9														
bis(2-Chloroethoxy)methane	111-91-1	NA	3														
bis(2-Chloroisopropyl)ether	39638-32-9	NA	0														
bis(2-Ethylhexyl)phthalate	117-81-7	NA	1									1					
Butylbenzylphthalate	85-68-7	NA 470	0	0.04	0.04						0.004						
Chrysene	218-01-9	173	3	0.01	0.04						0.004						
Diethylphthalate	84-66-2	NA	4														
Di-n-butylphthalate	84-74-2	NA	1														
Pentachlorophenol	87-86-5	81	5	0.2	0.4												
Phenol	108-95-2	8400	4	0.04	0.2							1					
1,1'-Biphenyl	92-52-4	NA	6														
bis(2-Chloroethyl)ether	111-44-4	NA	16														
4-Chloroaniline	106-47-8	NA	8								NA	1					
Naphthalene	91-20-3	NA	21														
Hazard Index											0.004					0.003	0.00007

Integral Consulting Inc. Page 1 of 9

	MW-02	MW-02A	MW-02A	MW-02A	MW-02A	MW-07	MW-07	MW-07	MW-07	MW-07A	MW-07A (AVG)	MW-07A (AVG)	MW-07A	MW-08	MW-08
Parameter	7/25/2012	11/12/2008	10/12/2011	2/24/2012	7/25/2012	11/10/2008	10/5/2011	2/24/2012	7/31/2012	11/3/2008	10/4/2011	2/24/2012	7/25/2012	11/11/2008	10/6/2011
CL VOCs (µg/L)															
Benzene							0.003	0.009	0.007						
Bromoform															
Chloroethane															
Chloroform		NA		NA						NA	NA	NA			
cis-1,3-Dichloropropene															
Ethylbenzene															
Methylene chloride														0.0005	
trans-1,3-Dichloropropene															
Trichlorofluoromethane															
1,2-Dichloroethane								NA	NA	NA		NA			
1,1,2,2-Tetrachloroethane										NA					
Tetrachloroethene	NA	NA			NA					NA		NA	NA		
Toluene								NA	NA						
1,1,2-Trichloroethane															
Trichloroethene	NA	NA	NA	NA	NA			NA	NA	NA	NA	NA	NA		
Vinyl Chloride	101	177	14/1	1471	14/1			147.	1473	1471	14/4	1474	1473		
Xylenes (total)															
CL SVOCs (µg/L)															
1,2,4-Trichlorobenzene								0.01							
1,2-Dichlorobenzene						0.01	0.006	0.008							
1,3-Dichlorobenzene						0.0.	0.000	0.000							
1,4-Dichlorobenzene						0.02	0.01	0.01	0.02						
2,4,6-Trichlorophenol						0.02	0.01	0.01	0.02						
2,4-Dinitrophenol															
2-Chlorophenol														0.009	
2-Methylphenol														0.009	
2-Nitrophenol															
4-Chloro-3-methylphenol															
Aniline														NA	NA
bis(2-Chloroethoxy)methane															
bis(2-Chloroisopropyl)ether															
bis(2-Ethylhexyl)phthalate															
Butylbenzylphthalate				1											
Chrysene															
Diethylphthalate				1											
Di-n-butylphthalate				1											
Pentachlorophenol														0.2	
Phenol				1											
1,1'-Biphenyl						NA									
bis(2-Chloroethyl)ether				1											
4-Chloroaniline				1										NA	NA
Naphthalene															
azard Index						0.03	0.02	0.04	0.03					0.3	
		1	1	1	1				1	1	1	1			1

Integral Consulting Inc. Page 2 of 9

	MW-08	MW-08	MW-8A	MW-8A	MW-8A	MW-8A	MW-14	MW-14	MW-14	MW-14	MW-14A (AVG)	MW-14A	MW-14A	MW-14A	MW-14C
Parameter	2/21/2012	7/23/2012	11/3/2008	10/5/2011	2/21/2012	7/23/2012	11/5/2008	10/4/2011	2/27/2012	7/27/2012	11/5/2008	10/7/2011	2/29/2012	7/31/2012	11/5/2008
TCL VOCs (µg/L)															
Benzene	0.002			0.0006			0.003	0.001	0.002	0.003	0.02	0.006	0.01	0.01	
Bromoform															
Chloroethane															
Chloroform		NA	NA		NA	NA					NA			NA	NA
cis-1,3-Dichloropropene															
Ethylbenzene							0.004	0.0008	0.003	0.005	0.004		0.002	0.002	
Methylene chloride	0.0002	0.0006									0.005				
trans-1,3-Dichloropropene															
Trichlorofluoromethane															
1,2-Dichloroethane			NA		NA	NA					NA	NA	NA	NA	NA
1,1,2,2-Tetrachloroethane			NA		NA								NA		NA
Tetrachloroethene			NA			NA							NA	NA	
Toluene		NA					NA	NA	NA	NA	NA		NA	NA	
1,1,2-Trichloroethane		100					147	147.	10.	1.00	NA		NA NA	NA NA	NA
Trichloroethene			NA	NA	NA	NA					NA NA		NA NA	NA NA	NA NA
Vinyl Chloride			INA	11/3	INA	IVA					INA		NA NA	NA NA	IN/S
Xylenes (total)							NA	NA	NA	NA			NA NA	NA NA	
Ayleries (total)							INA	INA	NA NA	INA			INA	INA	
TCL SVOCs (μg/L)															
1,2,4-Trichlorobenzene											0.2	0.3	0.4	0.3	
1,2-Dichlorobenzene				0.0008							0.2	0.02	0.09	0.06	
1,3-Dichlorobenzene											0.01		0.01		
1,4-Dichlorobenzene											0.3	0.04	0.1	0.1	
2,4,6-Trichlorophenol															
2,4-Dinitrophenol															
2-Chlorophenol											0.003		0.003		
2-Methylphenol															
2-Nitrophenol															
4-Chloro-3-methylphenol															
Aniline	NA					NA									
bis(2-Chloroethoxy)methane	INA					11/4			1	1				1	
bis(2-Chloroisopropyl)ether															
bis(2-Ethylhexyl)phthalate															
Butylbenzylphthalate															
Chrysene															
Diethylphthalate									1	1				1	
Di-n-butylphthalate	0.0								1	1			0.04	1	
Pentachlorophenol	0.2								1	1			0.01	1	
Phenol									1	1	N.A.			1	
1,1'-Biphenyl									1	1	NA			1	
bis(2-Chloroethyl)ether											NA				
4-Chloroaniline						NA			1					l	
Naphthalene							NA			NA	NA		NA	NA	
Hazard Index	0.2	0.0006		0.001			0.007	0.002	0.005	0.008	0.7	0.3	0.7	0.4	

Integral Consulting Inc. Page 3 of 9

	MW-14C	MW-14C	MW-14C	MW-15	MW-15	MW-15	MW-15	MW-15A	MW-15A	MW-15A	MW-15A	MW-16	MW-16	MW-16	MW-16
Parameter	10/4/2011	2/24/2012	7/24/2012	11/5/2008	10/12/2011	2/23/2012	7/24/2012	11/5/2008	10/7/2011	2/22/2012	8/1/2012	11/5/2008	10/6/2011	2/23/2012	7/30/2012
TCL VOCs (μg/L)															
Benzene				0.003		0.003	0.001	0.02		0.02	0.03	0.1	0.1	0.1	0.05
Bromoform															
Chloroethane											NA				
Chloroform		NA	NA				NA	NA	NA	NA	NA				
cis-1,3-Dichloropropene															
Ethylbenzene				0.002		0.001	0.0004	0.005		0.004	0.01	0.07	80.0	0.1	0.07
Methylene chloride						0.00002									
trans-1,3-Dichloropropene															
Trichlorofluoromethane														NA	NA
1,2-Dichloroethane			NA				NA	NA	NA	NA	NA				
1,1,2,2-Tetrachloroethane										NA	NA				
Tetrachloroethene										NA	NA				
Toluene						NA	NA	NA		NA	NA	NA	NA	NA	NA
1,1,2-Trichloroethane	NA	NA	NA					NA		NA	NA				
Trichloroethene	NA	NA	NA					NA		NA	NA				
Vinyl Chloride								NA		NA	NA				
Xylenes (total)				NA		NA	NA			NA	NA	NA	NA	NA	NA
TCL SVOCs (µg/L)															
1,2,4-Trichlorobenzene								0.06	0.2	0.2	0.2				
1,2-Dichlorobenzene				0.09		0.002	0.001	0.1	0.07	0.1	0.09	0.006		0.006	
1,3-Dichlorobenzene				0.002							0.01				
1,4-Dichlorobenzene				0.04		0.001	0.0008	0.2	0.1	0.2	0.2	0.004		0.004	0.008
2,4,6-Trichlorophenol															
2,4-Dinitrophenol															
2-Chlorophenol												0.01			
2-Methylphenol				0.001				0.0005			0.008	0.02	0.01		
2-Nitrophenol											51000				
4-Chloro-3-methylphenol															
Aniline				NA							NA	NA	NA		
bis(2-Chloroethoxy)methane				14/1				NA			147.	1474	14/1		
bis(2-Chloroisopropyl)ether								1471							
bis(2-Ethylhexyl)phthalate															
Butylbenzylphthalate															
Chrysene															
Diethylphthalate															
Di-n-butylphthalate															
Pentachlorophenol				0.04											
Phenol				0.01				NI A	N1 A						
1,1'-Biphenyl								NA	NA						
bis(2-Chloroethyl)ether															
4-Chloroaniline													NA		
Naphthalene							NA	NA	NA	NA	NA	NA			
Hazard Index				0.2		0.007	0.004	0.4	0.4	0.5	0.5	0.2	0.2	0.2	0.1

Integral Consulting Inc. Page 4 of 9

	MW-16A	MW-16A	MW-16A	MW-16A (AVG)	MW-16C	MW-16C	MW-16C	MW-16C	MW-17	MW-17	MW-17	MW-17	MW-18R	MW-18R	MW-18R
_	44/0/0000	40/0/0044	0/00/0040	0/4/0040	44440000	40/0/0044	0/00/0040	7/00/0040	44/4/0000	40/4/0044	0/07/00/0	7/00/0040	44/4/0000	10/1/0011	0/00/0040
Parameter TCL VOCs (μg/L)	11/6/2008	10/6/2011	2/29/2012	8/1/2012	11/4/2008	10/6/2011	2/23/2012	7/23/2012	11/4/2008	10/4/2011	2/27/2012	7/26/2012	11/4/2008	10/4/2011	2/22/2012
Benzene	0.02	0.03	0.05	0.04					0.006	0.007	0.008	0.009	0.002	0.002	0.002
Bromoform	0.02	0.00	0.00	0.04					0.000	0.007	0.000	0.003	0.002	0.002	0.002
Chloroethane			NA	NA							NA	NA			
Chloroform			INA	NA NA	NA			NA		NA	NA NA	NA NA	NA	NA	NA
cis-1,3-Dichloropropene				INA	IVA			IVA		INA	11/3	IVA	11/3	IVA	IVA
Ethylbenzene			0.01	0.008					0.09	0.05	0.1	0.07	0.1	0.08	0.05
Methylene chloride			0.01	0.000					0.03	0.05	0.00008	0.07	0.0003	0.00	0.00002
trans-1,3-Dichloropropene											0.00008		0.0003		0.00002
Trichlorofluoromethane															
1,2-Dichloroethane	NA	NA	NA	NA					NA	NA	NA	NA			NA
	INA	INA	INA	NA NA					INA	INA	INA	INA			INA
1,1,2,2-Tetrachloroethane			NIA									NIA.			
Tetrachloroethene			NA	NA								NA			
Toluene			NA	NA NA					NA						
1,1,2-Trichloroethane	NA		NA	NA						NA	NA	NA			
Trichloroethene			NA	NA	NA		NA	NA			NA	NA			NA
Vinyl Chloride			NA	NA				NA			NA				
Xylenes (total)			NA	NA					NA						
TCL SVOCs (µg/L)															
1,2,4-Trichlorobenzene	0.1	0.2	0.3	0.3											
1,2-Dichlorobenzene	0.08	0.1	0.2	0.1											
1,3-Dichlorobenzene	0.009		0.2												
1,4-Dichlorobenzene	0.1	0.2	0.3	0.3		0.003									
2,4,6-Trichlorophenol	0.1	0.2	0.0	0.0		0.000			0.003						
2,4-Dinitrophenol									0.000						
2-Chlorophenol									0.02		0.02	0.01	0.02		
2-Methylphenol									0.0005		0.02	0.01	0.02		
2-Nitrophenol									2			0.8	0.3		0.2
4-Chloro-3-methylphenol												0.0	0.5		0.2
Aniline															
bis(2-Chloroethoxy)methane															
bis(2-Chloroisopropyl)ether															
bis(2-Ethylhexyl)phthalate															
Butylbenzylphthalate															
Chrysene									1						
Diethylphthalate															
Di-n-butylphthalate									0.07						1
Pentachlorophenol									0.07						1
Phenol		N. A													
1,1'-Biphenyl		NA							1						1
bis(2-Chloroethyl)ether	NA		NA												
4-Chloroaniline									1				NA		1
Naphthalene	NA	NA	NA	NA											
Hazard Index	0.3	0.6	0.8	0.7		0.003			2	0.05	0.1	0.9	0.5	0.08	0.3

Integral Consulting Inc. Page 5 of 9

	MW-18R (AVG)	MW-18AR	MW-18AR	MW-18AR	MW-18AR	MW-27	MW-27 (AVG)	MW-27	MW-27	MW-28	MW-28	MW-28	MW-28	MW-28A	MW-28A
Parameter	7/26/2012	11/3/2008	10/4/2011	2/22/2012	7/23/2012	11/3/2008	10/11/2011	2/27/2012	7/30/2012	11/6/2008	10/6/2011	3/1/2012	7/30/2012	11/6/2008	10/5/2011
TCL VOCs (µg/L)															
Benzene	0.002					0.002		0.003	0.003	0.002		0.003	0.003		
Bromoform															
Chloroethane								NA	NA						
Chloroform		NA		NA	NA								NA	NA	
cis-1,3-Dichloropropene															
Ethylbenzene	0.03			0.004		0.01		0.02	0.01	2	2	2	2		
Methylene chloride								0.00007				0.00007	0.0002		
trans-1,3-Dichloropropene															
Trichlorofluoromethane															
1,2-Dichloroethane	NA					NA	NA	NA	NA	NA		NA	NA		
1,1,2,2-Tetrachloroethane														NA	
Tetrachloroethene	NA														
Toluene	NA					NA		NA	NA	NA	NA	NA	NA		
1,1,2-Trichloroethane								NA							
Trichloroethene	NA							NA				NA		NA	
Vinyl Chloride						NA		NA	NA	NA		NA			
Xylenes (total)	NA			NA		NA		NA	NA	NA	NA	NA	NA		
TCL SVOCs (μg/L)															
1,2,4-Trichlorobenzene															
1,2-Dichlorobenzene								0.0009							
1,3-Dichlorobenzene															
1,4-Dichlorobenzene	0.0003					0.002		0.001			0.002				
2,4,6-Trichlorophenol															
2,4-Dinitrophenol															
2-Chlorophenol										1				0.002	
2-Methylphenol										0.003					
2-Nitrophenol	0.2														
4-Chloro-3-methylphenol															
Aniline										NA					
bis(2-Chloroethoxy)methane						NA			NA						
bis(2-Chloroisopropyl)ether															
bis(2-Ethylhexyl)phthalate										NA					
Butylbenzylphthalate															
Chrysene									1	0.04					
Diethylphthalate				NA						NA				NA	
Di-n-butylphthalate									1	NA					
Pentachlorophenol									1	0.4					
Phenol									1	0.02					
1,1'-Biphenyl									1						
bis(2-Chloroethyl)ether 4-Chloroaniline						NA	NA	NA	NA	NA			NA		
4-Chioroaniline Naphthalene						NA				NA					
Hazard Index	0.2			0.004		0.01		0.02	0.02	4	2	2	2	0.002	

Integral Consulting Inc. Page 6 of 9

Shoreline Monitoring Wells*	MW-28A	MW-28A (AVG)	MW-29	MW-29	MW-29 (AVG)	MW-29	MW-29A	MW-29A	MW-29A	MW-29A	MW-37	MW-37	MW-37	MW-37	MW-38
	MW ZOA	MIN ZOA (AVO)	11111 23	11111 23	MIII 23 (A13)	11111 23	III 25A	III 20A	MIV 25A	1111 201	11111 01		11111 07	11111 01	
Parameter	2/21/2012	7/24/2012	11/6/2008	10/10/2011	2/22/2012	7/26/2012	11/6/2008	10/18/2011	2/22/2012	7/26/2012	11/10/2008	10/5/2011	2/23/2012	7/25/2012	11/6/2008
TCL VOCs (µg/L)															
Benzene															
Bromoform															
Chloroethane															
Chloroform		NA	NA				NA	NA	NA	NA	NA	NA			
cis-1,3-Dichloropropene															
Ethylbenzene															
Methylene chloride															
trans-1,3-Dichloropropene															
Trichlorofluoromethane															
1,2-Dichloroethane	NA	NA											NA		
1,1,2,2-Tetrachloroethane											NA		NA		
Tetrachloroethene			NA	NA	NA	NA	NA			NA	NA			NA	NA
Toluene															
1,1,2-Trichloroethane															
Trichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Vinyl Chloride															
Xylenes (total)															
TCL SVOCs (μg/L)															
1,2,4-Trichlorobenzene															
1,2-Dichlorobenzene			0.0004								0.002				
1,3-Dichlorobenzene															
1,4-Dichlorobenzene			0.0004								0.003				
2,4,6-Trichlorophenol															
2,4-Dinitrophenol															
2-Chlorophenol															
2-Methylphenol															
2-Nitrophenol															
4-Chloro-3-methylphenol															
Aniline															
bis(2-Chloroethoxy)methane															
bis(2-Chloroisopropyl)ether															
bis(2-Ethylhexyl)phthalate															
Butylbenzylphthalate															
Chrysene			0.002												
Diethylphthalate															
Di-n-butylphthalate															
Pentachlorophenol															
Phenol															
1,1'-Biphenyl															
bis(2-Chloroethyl)ether						NA									1
4-Chloroaniline															
Naphthalene															
Hazard Index			0.003								0.004				
Hazaru Hluex			0.003	1			1				0.004				

Integral Consulting Inc. Page 7 of 9

	MW-38 (AVG)	MW-38	MW-38	MW-41	MW-41 (AVG)	MW-41	MW-41	MW-42 (AVG)	MW-42	MW-42	MW-42	MW-43	MW-43	MW-43	MW-43
Parameter	10/10/2011	2/21/2012	7/24/2012	11/3/2008	10/5/2011	3/1/2012	7/31/2012	11/10/2008	10/14/2011	2/29/2012	8/3/2012	11/3/2008	10/7/2011	2/23/2012	7/25/2012
CL VOCs (μg/L)					0.000		0.000			0.007	0.000		0.0000	0.0000	
Benzene Bromoform					0.002		0.002			0.007	0.003		0.0002	0.0003	
Chloroethane Chloroform										NA					
cis-1,3-Dichloropropene										INA					
Ethylbenzene						0.0009				0.0007		0.2			
Methylene chloride						0.00003				0.0007		0.0006			
trans-1,3-Dichloropropene						0.00002						0.0000			
Trichlorofluoromethane															
1,2-Dichloroethane										NA	NA		NA	NA	
1,1,2,2-Tetrachloroethane										1.0.	1473		100	1.0.	
Tetrachloroethene										NA	NA				
Toluene					NA					NA NA	1473	NA			
1,1,2-Trichloroethane															
Trichloroethene							NA			NA	NA			NA	
Vinyl Chloride														NA	NA
Xylenes (total)						NA				NA		NA			
ΓCL SVOCs (μg/L)															
1,2,4-Trichlorobenzene								0.01	0.3	0.4					
1,2-Dichlorobenzene					0.01			0.1	0.05	0.08	0.04				
1,3-Dichlorobenzene										0.01					
1,4-Dichlorobenzene				0.0001	0.02			0.2	0.08	0.1	0.06				
2,4,6-Trichlorophenol															
2,4-Dinitrophenol															
2-Chlorophenol								0.008							
2-Methylphenol												0.002			
2-Nitrophenol															
4-Chloro-3-methylphenol															
Aniline															
bis(2-Chloroethoxy)methane															
bis(2-Chloroisopropyl)ether															
bis(2-Ethylhexyl)phthalate															
Butylbenzylphthalate															
Chrysene															1
Diethylphthalate															
Di-n-butylphthalate															
Pentachlorophenol															
Phenol												0.0003			
1,1'-Biphenyl															
bis(2-Chloroethyl)ether															NA
4-Chloroaniline															
Naphthalene												NA			
				0.0001	0.04	0.0009	0.002	0.3	0.4	0.6	0.1	0.2	0.0002	0.0003	

Integral Consulting Inc. Page 8 of 9

	MW-43A	MW-43A	MW-43A	MW-43A	MW-44	MW-44	MW-44	MW-44	MW-45	MW-45	MW-45	MW-45
Parameter	11/11/2008	10/7/2011	3/1/2012	8/2/2012	11/5/2008	10/4/2011	2/28/2012	7/27/2012	11/6/2008	10/11/2011	2/28/2012	7/30/2012
TCL VOCs (µg/L)												
Benzene		0.02	0.06	0.01	0.01	0.05	0.04	0.03	0.008	0.01	0.02	0.01
Bromoform												
Chloroethane			NA	NA					NA	NA	NA	NA
Chloroform												
cis-1,3-Dichloropropene												
Ethylbenzene	0.1	0.01	0.02	0.008	0.008	0.03	0.03	0.02	0.06	0.08	0.1	0.1
Methylene chloride										0.00006	0.00008	0.00004
trans-1,3-Dichloropropene												
Trichlorofluoromethane												
1,2-Dichloroethane			NA	NA					NA	NA	NA	NA
1,1,2,2-Tetrachloroethane												
Tetrachloroethene			NA	NA								NA
Toluene	NA	NA	NA	NA		NA	NA	NA	NA	NA	NA	NA
1,1,2-Trichloroethane									NA	NA	NA	NA
Trichloroethene			NA	NA						NA	NA	
Vinyl Chloride			NA						NA	NA	NA	NA
Xylenes (total)	NA	NA	NA	NA		NA	NA	NA	NA	NA	NA	NA
TCL SVOCs (µg/L)												
1,2,4-Trichlorobenzene	0.2	0.2		0.4					0.005			
1,2-Dichlorobenzene	0.2	0.2	0.7	0.2				0.003	0.008			
1,3-Dichlorobenzene	0.01											
1,4-Dichlorobenzene	0.3	0.3	0.8	0.4	0.001			0.002	0.01	0.006	0.01	0.01
2,4,6-Trichlorophenol												
2,4-Dinitrophenol												
2-Chlorophenol	0.08		0.1		0.002							
2-Methylphenol	0.003											
2-Nitrophenol												
4-Chloro-3-methylphenol												
Aniline												
bis(2-Chloroethoxy)methane												
bis(2-Chloroisopropyl)ether												
bis(2-Ethylhexyl)phthalate												
Butylbenzylphthalate												
Chrysene												
Diethylphthalate	NA											
Di-n-butylphthalate												
Pentachlorophenol												
Phenol					0.0002							
1,1'-Biphenyl	NA											
bis(2-Chloroethyl)ether	NA			NA					NA	NA		NA
4-Chloroaniline					NA			NA				
Naphthalene									NA	NA	NA	
Hazard Index	0.9	0.7	2	1	0.02	0.07	0.07	0.05	0.1	0.09	0.1	0.1

Notes:

AVG = Average with duplicate HQ = Hazard Quotient

NA = Screening value not available

SCV = Screening Value

SVOC = Semivolatile Organic Compounds

TCL = Target Compound List

VOC = Volatile Organic Compounds

Integral Consulting Inc. Page 9 of 9

^a Analysis based on shoreline wells that are representative of potential groundwater discharge. Well located in the Site interior were excluded from the analysis. These wells include: MW-3A, MW-3A, MW-5, MW-9A, MW-10, MW-11, MW-12A, MW-12A, MW-13A, MW-13C, MW-13D, MW-30A, MW-31A, MW-31A, MW-32A, MW-32A, MW-33A, MW-34A, AND MW-35.

^b Screening values are conservative secondary chronic values adapted from USEPA's 1991 ambient water quality guidelines.